

# HOME COMPUTING WEEKLY

AN ARGUS SPECIALIST PUBLICATION

April 9-15 1985 No. 107 45p

**FREE!**



**BLAGGER GOES TO HOLLYWOOD**

**T Shirt & Badge Offer**

April showers bring prizes from **AKHTER**



We've got **£1000** of prizes up for grabs

Here's our winner!



Meet **Wallykhamen and friends**  
Your state-of-the-art badge designs

## Tatung to enter home market?

Tatung has slashed the price of its Einstein from £500 to £350.

And rumours of a new model, which will compete with the Amstrad CPC464, are currently being bandied about.

Code-named the Micro Einstein, the new computer is reported to feature a built-in three inch disc drive, 64K of RAM, 16K of video RAM and software which includes Crystal BASIC, a BBC-like BASIC and Dr Logo.

According to a source at Tatung, the Micro Einstein will be unveiled at a trade show in May. The basic model should cost about £300 (UHF modulator extra) while the computer plus colour monitor should retail at £450.

Colin Charters, Tatung sales manager, was being cagey. "We're looking at various markets to find where the niches are," he said. "And the objective in cutting the price of



Einstein — price slashed to £350

the Einstein is to gain a larger share of the market."

The Einstein has suffered from a lack of software, but Mr Charters claims this has now

been remedied, with supporting titles from 20 software houses, amongst whom are Ocean, Software Projects and Activision.

## A wafer revolution

Cheaper than a disc drive but hundreds of times faster than a cassette — it's the wafer drive.

Based on the principal of the endless loop, the tiny wafers run on compact data drives. The C64 version, from Dean Electronics, costs less than £100 and joins the Rotronics' Spectrum Wafadrive, launched last summer.

Now BSR, Dean and Rotronics have joined to promote the waferdrives. Neal Stewart, BSR deputy chairman, said: "We're aiming to replace cassette storage among low-cost computer users."

Shaun Tredinnick of Dean



C64 Quick Data Drive

Electronics explained: "Initially, we will be offering a bundle which includes the drive, quick operating system, a blank wafer and a game, at a cost of just under £100 for the C64."

Software houses interested in this storage medium include

Melbourne House, Hewson Consultants and The Edge.

The cost of each wafer ranges between £2.45 and £2.99, depending on memory: currently there is only a 44p difference between a 16K and a 128K wafer.

Inside your bolder, brighter, better HCW...

Add-ons: Disc drives and interfaces summed up

Listen to this! Sound moves for the Amstrad



Meet our Boy Wonder See p.3

Hi-scores, jokes, puzzles, cartoons...



# The Band's On The Run!

...7 busy characters, 10 lost chords, 15 hours, 48 Traffic Wardens, 95 London Tube Stations, 126,720 square feet of London, 7 million Londoners ... 943 action filled screens.

PAUL MCCARTNEY'S *Give my regards to*

# BROAD STREET

The new single is missing and the band have gone home for the weekend — leaving you just 15 hours to re-create the missing tune.

A race against time around London to find each member of the missing band. You have to watch out for blue meanies, wardens and Rath! A clever strategy game, full of excitement, brilliant graphics and all wrapped-up with McCartney music!



MIND GAMES

Argus Press Software

Liberty House, 222 Regent Street, London W1R 7DB

For the Spectrum and Commodore £7.99

Available from W H Smith, Menzies, Laskys and all good computer stores.



DAILY EXPRESS  
says  
'STUNNING'





# HOME COMPUTING WEEKLY

## CONTENTS

April 9-April 15, 1985 No. 107

Editor Dave Carlos  
 Deputy Editor Liz Graham  
 Editorial Assistant Marie Curry  
 Software Assistant John Donovan  
 Group Editor Wendy Palmer  
 Design MM Design  
 Copy Control Kerry Fowler  
 Ad Manager Dominic Forlizzi  
 Asst Ad Manager Ian Atkinson  
 Divisional Ad Manager Chris Northam  
 Classified Advertising David Horne  
 Publishing Director Peter Welham  
 Chairman Jim Connell

### AMSTRAD CPC464

Return to Zarkon .....32

### SPECTRUM

Sorting at the speed of light .....38

### REGULARS

News .....4-6  
 Win a BBC — competition .....7  
 Ventures .....12  
 Reviews .....16-20  
 Book reviews .....41  
 Your letters .....42-43  
 Classified ads start on .....44  
 Readers' page .....46

### Coming Soon...

- Review of Seiko's new wrist-watch terminal
- Star profile on author Craig Thomas
- Kempston and Arcade joysticks — our experts look them over

### SPECIAL FEATURES

Sound moves .....10  
 Discovery 1 and Panda interface reviews .....14  
 Graphics feature .....22

### COMMODORE 64

Welcome to BASIC .....8

### ORIC-1 / ATMOS

Cosmic Chaos .....24

### TI-99/4A

How to program your TI .....27

### BBC

The bells, the bells .....29

### Soapbox

Hackers have been in the public eye lately. Firstly there was the publication of the Hackers Handbook, which supposedly gave information enabling widespread fraud, and now two hackers have been arrested under the Forgeries and Counterfeiting Acts.

Is it possible to forge a computer disc? Can it be mere coincidence that the first such prosecutions are directed against two well-known hackers?

It seems that the powers that be are taking the offensive on this matter. I wouldn't argue their right to do so, but does this justify making a public example of these offenders?

John

If you have anything to say — if you disagree violently with anything we write, or if you want to voice an opinion — write to us at Home Computing Weekly, No.1 Golden Square, London W1R 3AB, and get it out of your system. We send a prize to the write of each letter.

Argus Specialist Publications Ltd.

No. 1 Golden Square, London W1R 3AB. 01-437 0626

Home Computing Weekly is published on Tuesdays. Subscriptions and back issues: Infonet Ltd, 10-13 Times House, 179 Marlows, Hemel Hempstead, Herts HP1 1BB. 0442 48432. Trade distribution: Argus Press Sales and Distribution Ltd, 12-14 Paul Street, London EC2A 4JS. 01-247 8233. Printed by Alabaster Passmore & Sons, Ltd, of London and Maidstone, Kent. Design and origination: MM Design, Circus House, 26 Little Portland Street, London W1N 5AF

### BASIC LIVING

by Jon Wedge and Jim Barker





S

W

E

N

### Hi, Robot!

Fischertechnik has added more possibilities to its computer robotics pack. Now it is possible to make 10 different robot forms from the £64.95 kit.

If you've ever wanted to build a lift with up to three floors, a dual function machine tool, pedestrian controlled traffic lights or an aerial rotor you can do so with the revised kit.

There are interfaces available for Apple II, Commodore and BBC machines, but they will cost you another £64.95. However, this is still a competitive way to start learning about computers and machine control.

**Economatics, Epic House, 4 Orgreave Road, Handworth, Sheffield S13 4LQ**

### Gift of the gab

If you have ever wished your C64 could talk, Cheetah has made it possible with its new add-on.

The Sweet Talker connects to the computer by the rear port. A phono lead carries the signal to the internal sound system, and it's channelled through the TV or monitor.

There is no fixed vocabulary as the system uses allophones. To create words you string together the component parts and feed these codes to the unit.

For £24.95 the Sweet Talker gives you spoken error messages, warnings during game play and prompts in business programs.

**Cheetah Marketing, 24 Ray St, London EC1R 3DJ**



The voice of the C64

### Software update

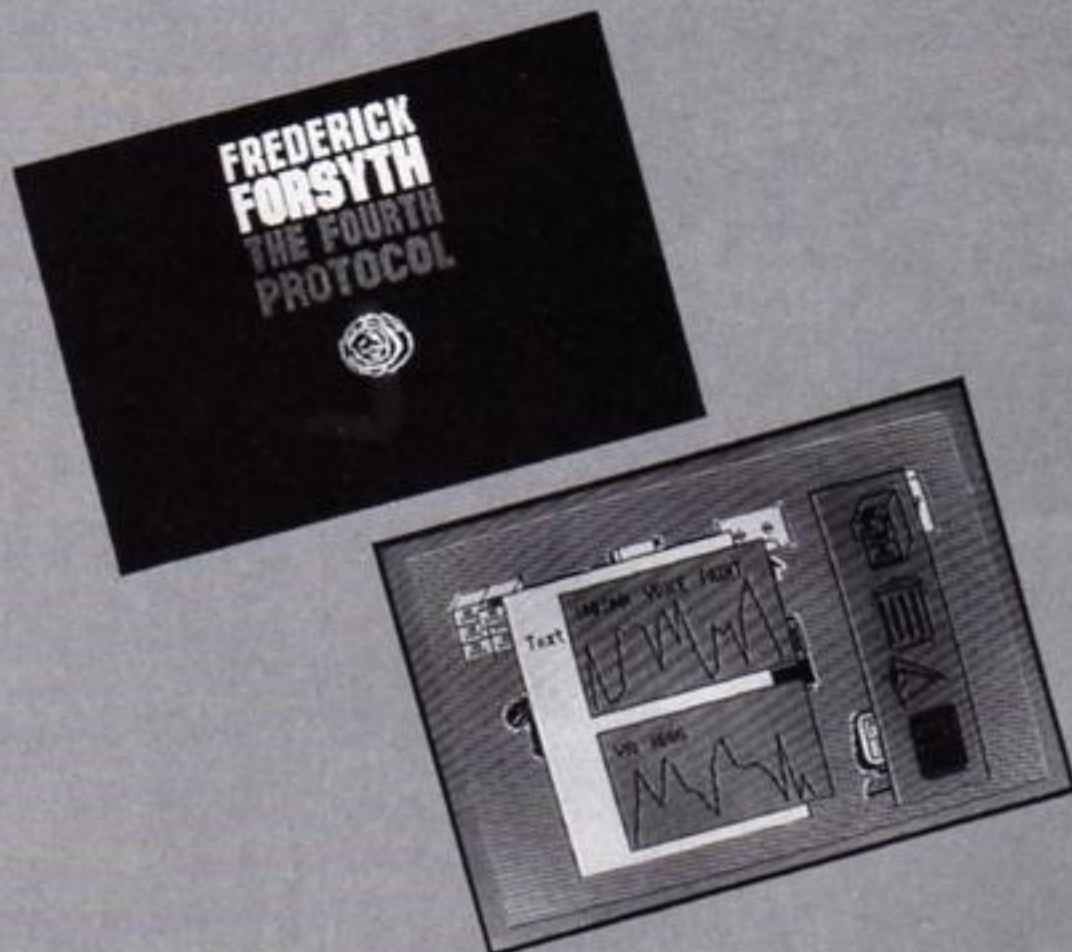
New releases are thin on the ground this week. The Fourth Protocol, based on Frederick Forsyth's best-selling novel, has been receiving pre-release promotion. Publishers Hutchinson claim advance orders of 30,000 — and the game won't be available until May 23.

Doug Fox, general manager of Hutchinson, said: "If the game goes as well as we expect it to, we have plans to follow it up with more computer games backed by authors of popular books."

And a computer adaptation of Forsyth's Day of the Jackal is on the cards, and should be in the shops by spring 1986.

Ariolasoft is enticing Lode Runner fans with promises of gold. Ten winners will each win mini-Krugerrands.

Frank Brunger of Ariolasoft said: "The game is all about retrieving stolen gold, so we thought Krugerrands would make a nice prize." To get your hands on that precious metal you must submit your best challenge screen; winning entries will feature on Ariolasoft's follow-up Championship Lode Runner, to be released in the autumn.



Screen dumps from Forsyth's Fourth Protocol

Title	Machine	Price	Publisher
Tycoon Tex	C16	£6.75	Gremlin Grphcs
Xargon Wars	C16	£6.95	Gremlin Grphcs
Petals of Doom	C16	£6.95	Gremlin Grphcs
Arnhem	Spectrum	£8.95	CCS
The Fourth Protocol	Spectrum/ C64	£12.95	Hutchinson
Sub Strike	BBC	£6.50	Dream
Mastermaths			
Robin to the Rescue	C16/Plus/4	£6.95	Solar
World Series Baseball	C64/ Spectrum	£7.95/ £6.95	Imagine



### What a racket!

The end of April will be marked by the launch of Jonah Barrington's Squash by New Generation.

Available for the C64 and Spectrum, the game will simulate a full squash match and have a unique sound facility.

Jonah challenged Rod Evans of New Generation to a match and ended up teaching him some of the game's finer points, like how to stand upright when serving. It appears that the final score is a well guarded secret.

**New Generation, The Brooklands, 15 Sunnybank, Lyncomb Vale, Bath BA2 4TD**

### Mikro-Gen mystery

A package carrying the legend "There's a big one coming your way" came through the mail recently.

Further investigation proved the contents to be a disposable nappy — part of a promotion for Mikro-Gen's new game Herbert.

The game won't be featuring Wally Week, star of the Wally games. Mikro-Gen promises that the game is easier and more lighthearted than recent release Everyone's a Wally.

**MikroGen, 44 The Broadway, Bracknell, Berks**

### Speedy Speccy

Interface III from Evesham Micro Centre is being hailed by the company as a real breakthrough for Spectrum owners.

The unit involves both hardware and software additions to the machine and at less than £40 it is claimed it will enable you to write any cassette program to Microdrive cartridge, so that it can be run straight from the Microdrive.

Interface III allows you to stop a program at any stage and then save the result as a screen string.

With this added speed it is unlikely that Spectrum owners will be drinking much coffee anymore. They won't have time to wait for the kettle to boil while their software is loading.

**Evesham Micro Centre, Bridge St, Evesham, Worcs WR11 4RY**

### Users unite

If you own an Enterprise or an MSX machine you can now join newly formed user groups.

Mark Lissak is interested in forming a group for Enterprise owners and will send further details to anyone who writes enclosing an SAE. He is interested in Enterprise users who can offer assistance as well as those who need it.

The MSX group being formed by Tony Brown aims to publish a newsletter featuring programming hints, technical tips and software reviews. All you need to do is send an envelope to his address below.

**Mark Lissak, 40 Mansfield Rd, London NW3 3HT**  
**Tony Brown, Emscote Mill, Wharf St, Warwick**

### Jonah Barrington about to squash Rod Evans

#### Important!

Gremlins got into our A'n'F Chuckie Egg 2 Competition last week. The clue to our code breaker was jumbled up and should have read; DZRSOQ = EASTER. The code breaker is still FN BQZBJ Z BGTBJHD DFF.

Closing date has been moved to Friday April 26 1985.

We apologise to everyone who got confused.

### Top ten

George is a very popular character if our competition post bag is anything to go by. We had our biggest entry for a number of months and over half found the 13 differences between the programs.

However, there was an error in the printing of the programs. The program which runs is Program B, as a number of you pointed out. Thank you to those who informed us of this error — which wasn't deliberate.

The 10 new George owners are: Arwel Hugues, Angelesey; Harish Patel, Walsall; J Liptrot, Maghull; David Cooke, Redruth; Kevin Whitfield, Haverhill; Paul Campbell, BFPO 41; Toni Sycamore, Launceton; Ian Balmer, Skelmersdale; Lisa Hadcock, Urmston; S J Widlake, Sheffield.



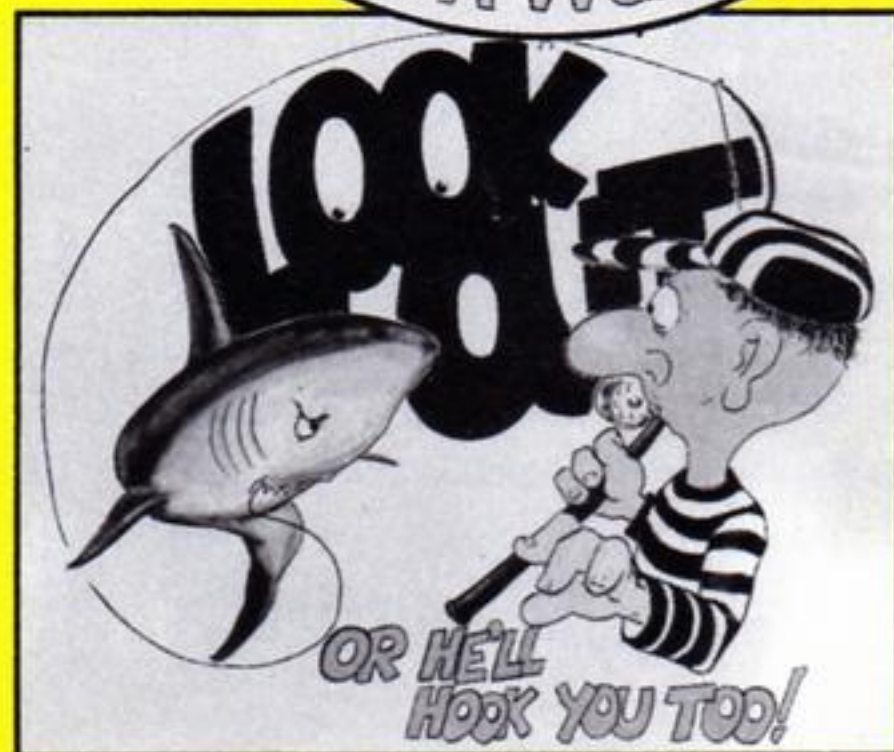
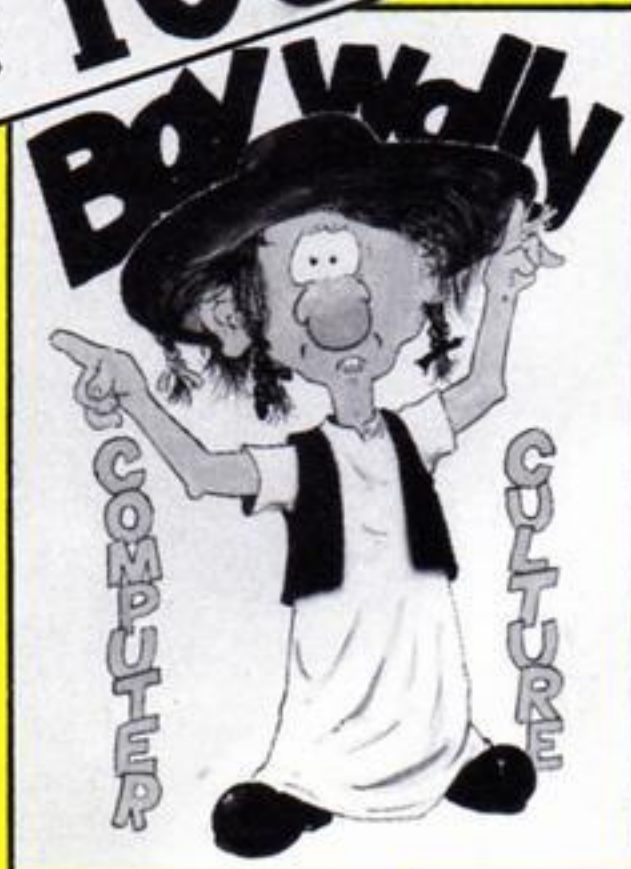
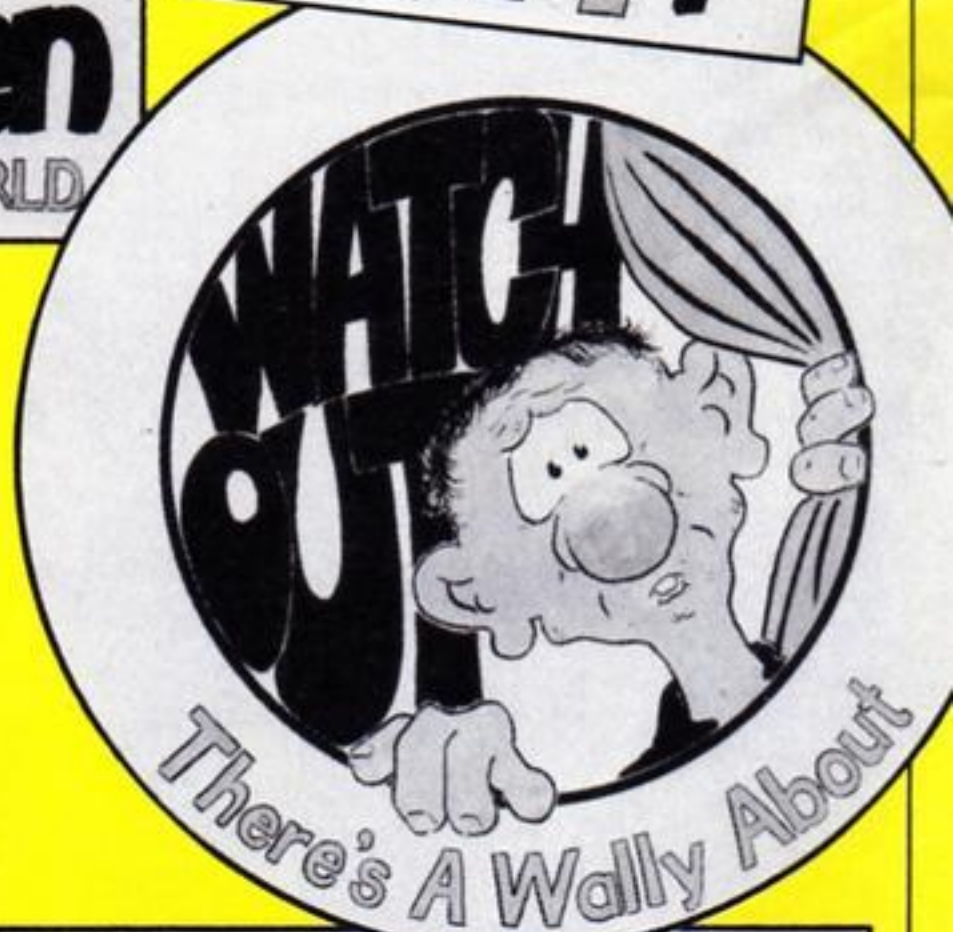


Design a Wally was the aim of our recent MikroGen competition and you certainly took us at our word

# WONDERFUL WALLYS



**WallyKhamen**  
8<sup>TH</sup> WONDER OF THE WORLD



After having an office full of Wallys for a number of weeks Mikro-Gen has judged the winning entrants of the Design a Wally competition.

There are 47 winners. The first prize, an all expenses paid trip to Mikro-Gen, goes to Umran Kahn of Norbury in London. His idea was the WallyKhamen Eighth Wonder of the World.

His idea, and those of the runners-up, has been produced as artwork for use by Mikro'Gen in future promotions. Posters, badges and perhaps games will feature some of these ideas.

The six winners of T-shirts and games are: Ian Malcolmson, Dromore; C A Byrne, Reading; Vijayesh Lad, Long Eaton; D E Nicholls, London; John Smith, Southampton; Mrs P Hinton, Reading.

There were 40 runners-up, who each win Everyone's a Wally. Here are their names: Andrew Richmond, Chesterfield; Sarah Grant, Harlow; Nicholas Bentley, Chapel-en-le-Frith, Liverpool; Robert Anderson, Hebburn; R Barlow, Scunthorpe; Richard Curtis, Wellingborough; Niloy Acharyya, Hull; I Gardner, Barnsley; Martyn Draycott, Chesterfield; Jason Hayward, Heckmonwike; J R Gambles, Rotheham; Michael Carman, Stoke

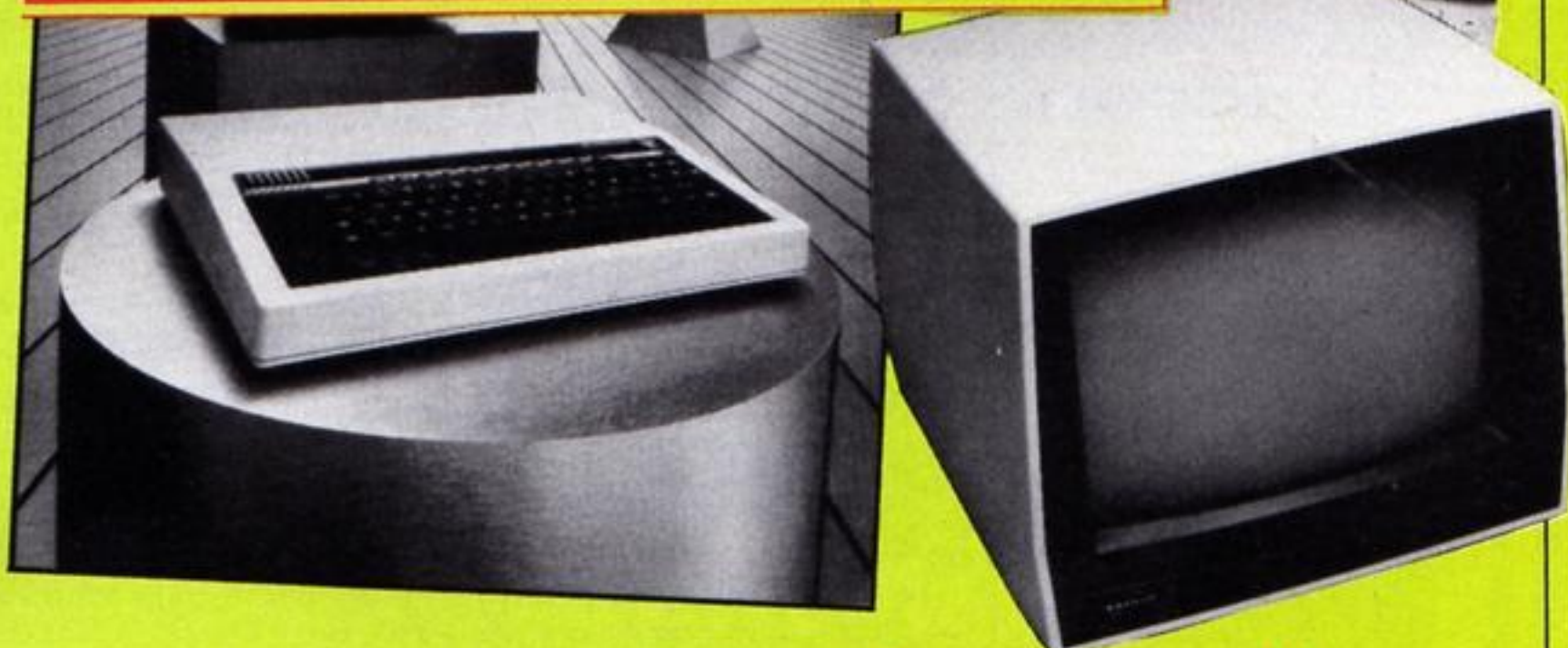
on Trent; S Monk, Royston; Gary Hughes, Clwyd; Chris Lovelace, Weybridge; James Ellis, Ripon; Darren White, Whitstable; Phillip Cox, Cheshire; Andrew Parker, Bury; Mark Clifton, Stockton on Tees; David Scott, Bedlington; Jason Kemley, Perthshire; Diane Cherry, Co Tyrone; Brook Campbell, Brentwood; Joe James Maguire, Nr Ulverston; Michael Clarke, Consett; Graeme Murray, Sunbury on Thames; Paul Cox, Romford; Andrew Gillespie, Macclesfield; W Chalk, Sydenham; J Clemence, RAF Gutersloh; Pascal Sendron, Ballineen; Juliet Roebuck, Lymington; Don Ramsay, Bradford; Kevin Clark, Eastbourne; Nicholas Taylor, Southminster; Simon Kelleher, Middlesbrough.





WIN A BBC SYSTEM!

## COMPUTER GROUP



There's hardware worth over £1000 on offer in our Akhter competition this week. The first prize winner will receive a full BBC system, with all cables, ready to plug in and run.

The competition is in two parts. The first part is published this week and the second appears in next week's issue. Both are easy to enter but you need both the coupons or your entry won't be valid.

The first prize is nearly £700-worth of computer equipment. A BBC micro, complete with disc interface, a Sanyo colour monitor and a monitor stand make up the package which will be sent to the top winner.

There are also two other prizes. The lucky winner of the second prize will be given a Sanyo colour monitor and stand, worth over £220, while the third prize is a green-screen Sanyo monitor and stand valued at over £125.

Akhter is a major supplier of disc drive systems for the BBC. Akhter believes these units are now so reliable that it supplies a Gold Standard, two-year guarantee on the drives.

Akhter also supplies printers, monitors, computers and software to an expanding market. The company has recently been appointed as the official educational distributor for the Sanyo computer systems.

Despite its rapid growth the company still wishes to listen to, advise and recommend systems to the individual customer and would like to hear from any reader who needs advice. Phone 0279 443521.

**We're giving away more than  
£1,000-worth of hardware this week.  
Jump to it! Second part next week**

### How to enter

All you have to do this week is make as many words as you can from:

### Akhter Computer Group

There are plenty of letters to use but all words should be more than three letters long.

You can use the words "computer" and "group". Please note that plurals and proper nouns are not allowed and all the words be found in the Concise Oxford Dictionary. You may only use each letter as often as it occurs in Akhter Computer Group.

When you think you've found as many as you can, enter the number of words on the coupon and make a neat list of the words ready for checking.

Preserve the coupon and list carefully until you have completed part two which will appear next week.

You may enter as many times as you wish, but each entry must be on an official entry coupon — not a copy — and sealed in a separate envelope.

### The rules

Entries will not be accepted from employees of Argus Specialist Publications, Akhter Computer Group, and Alabaster Passmore & Sons. This restriction also applies to employees' families and agents of the companies.

No entries can be accepted without both entry coupons. One from this week's magazine and one from part two which will be printed next week.

The How to Enter section forms part of the rules.

The editor's decision is final and no correspondence can be entered into.

### Akhter Competition

#### Entry Coupon (part 1)

Number of words \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ post code \_\_\_\_\_

Computer owned \_\_\_\_\_

Attach your list of words to this coupon and preserve it carefully until you have done part two of the competition which will appear next week.



In the second part of Brian Jones's series, he shows you how to start programming

# WELCOME TO BASIC



**H**ello again. In my last article I introduced you to the origins of the language BASIC and the actions of most of the keys on the Commodore 64 keyboard. Here are the answers to your "homework".

Firstly, the graphics characters generated by the Commodore logo key which flip when the Commodore and shift keys are pressed together are ↑ and \*.

To draw a diagonal line clear the screen, then enter a shifted M (i.e. hold down the shift and press M. If you get "m" flip back to capitals and graphics) then cursor down once. Continue alternating these last two steps until the bottom is reached. Easy!

The noughts and crosses board is easy once you find the right graphics characters, the ones which link up. Use the shifted -, \* and + for the vertical, horizontal and cross-over lines respectively.

Now, before we get down to writing a program, try this. On an otherwise blank line type:

```
PRINT 2+2
```

and press the key marked Return. You should see 4 appear on the next line, then a blank line, READY and the cursor flashing away on the line under that. If you get anything else, clear the screen and try again. The return key is the "action" key. It tells the computer to take the action appropriate to whatever was on the line you typed. Now try:

```
PRINT 3*2+1
```

and press return. Notice that the \* acts as a multiply sign.

Pressing Return is a very important step. The computer can't guess when you've finished entering the parts of your sum; you have to tell it when the calculation is ready to be done. So in general if I instruct you to enter something I mean type it in and press return. The PRINT part of the sum is an instruction from the vocabulary of BASIC which means "send the result of the following to the screen". We

can now turn this sort of instruction into a program. On a fresh line enter:

```
10 PRINT 6+4*9
```

When you pressed Return nothing much happened. Now enter the command RUN. This time when you pressed Return the answer 42 appeared. Were you expecting 90? Well, BASIC uses what is called algebraic logic. It multiplies and divides before adding and subtracting. So  $6+4*9$  is effectively  $6+(4*9)$ . If in doubt put brackets — but round brackets () not square.

But back to why we had to type RUN before we got the answer. The 10 before PRINT  $6+4*9$  made the computer behave differently. If the line to be actioned starts with a number the action taken is to store the line away in the computer's memory. If more lines starting with numbers are entered, they too are stored in memory, not in the order they are entered, but in the order of the numbers they start with. The RUN command tells the computer to go through what's in its memory and carry out those instructions in line number order.

Enter another line:

```
5 PRINT "THE ANSWER IS"
```

and RUN your two-line program. Notice that the double quotes round the message don't appear when it's RUN. Anything in quotes is reproduced on the screen exactly. Try:

```
PRINT "6+4*9" or
PRINT "2+2=5"
```

Now clear the screen and enter the command LIST. When you press Return, the two program lines are LISTed. so, we can clear the screen but it doesn't affect the program. How do we clear the program? Answer: enter NEW. Do that, and enter LIST again. All you get is the message: READY. That tells you that the computer is ready to accept your next instruction.

So far you've seen lots of arithmetic, but computer programs are usually mainly algebra — formula to get the answer, given the data. RUN this:

```
10 LET Y=15
20 LET M=8
30 LET T=Y*12+M
40 PRINT T
```

This program calculates how many months old a person 15 years and 8 months would be. Lines 10, 20 and 30 are assignment statements. Lines 10 and 20 assign values to Y and M respectively, but 30 gives a formula to calculate T. The LET is to emphasise that it is a formula to allocate a value, not an equation to be solved. However, in most versions of BASIC, including Commodore's, the LET is optional.

Let's change the program to replace the data by your age. There's no need to start all over again, just re-enter lines 10 and 20 with your values. You can use LIST to check that it's worked and RUN the new version.

Here's another one to try. NEW away the other program first.

```
10 LET M=26
20 LET K=M*1.6093
30 PRINT M;"MILES IN
KILOMETRES IS";K
```

Careful with the punctuation in line 30. See how you can mix message and results. Did you make a mistake and try to move the cursor back to correct it, or clear the screen to try again? Well, you can't! Once you type the " the cursor keys generate strange characters. I referred to this in my previous article. You can use the delete key; that's how to correct an error.

You might also be wondering why we number programs in tens, rather than 1, 2, 3. It's so that if we wanted to add extra lines later, in between two existing lines, there are values available. Look through some of the listings elsewhere in Home Computer Weekly and spot the late additions. Finally, two programs for you to try and write:

- 1 To convert 5 litres to pints
- 2 To calculate the full cost per tape of tapes sold in four dozen boxes for £19.95 excluding VAT. (Hint: to add 15% to anything, multiply it by 1.15).

Answers next week.



# MIRRORSOFT

‘You can rerun again and again, for education or for the sheer pleasure of looking at the stars without clouds, buildings, light-glare, or driving rain.’

—*Personal Computer News*

‘Altogether this is an interesting, informative and most valuable package which is to be strongly commended to every Beeb owner with an interest in astronomical matters.’

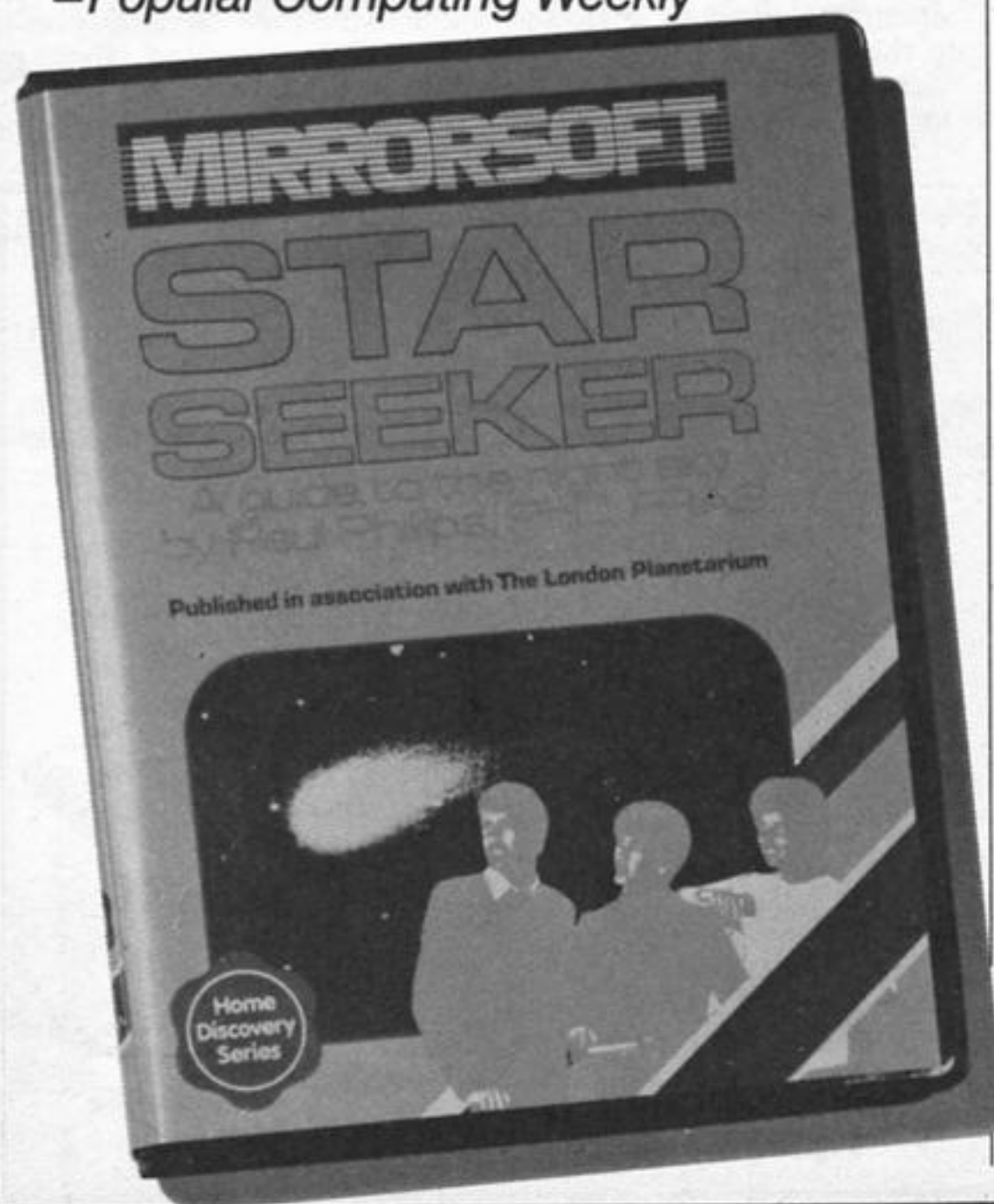
—*Acorn User*

‘A definitive must for any aspiring astronomer.’

—*Which Micro? and Software Review*

‘There is a mass of information in this program and booklet; it’s here astronomy comes to life.’

—*Popular Computing Weekly*



‘Star Seeker is definitely worth a look if you already take your astronomy seriously . . . I would also recommend it as a resource for the family.’

—*A&B Computing*

## ATTENTION ARMCHAIR ASTRONOMERS

Now, in the comfort of your own home, you can:

- Plot hundreds of stars
- Map the skies for any date or place you choose
- Name and plot constellations
- Simulate the changing night sky
- Locate planets and plot their orbits
- Dump screens to a printer

And plot the course of Halley’s Comet as it approaches the Earth later this year for the first time since 1910.

Available for: *Cassette* £9.95  
CBM 64, Spectrum 48K,  
Electron, MSX, BBC B

*Disk* £12.95  
CBM 64, Spectrum 48K,  
BBC B

**MIRRORSOFT programs are available from good software stockists everywhere or direct from:**  
**MIRRORSOFT**  
**Mirror Group Newspapers Ltd.,**  
**Holborn Circus, London EC1P 1DQ**  
**Telephone: 01-822 3580**



## SOUND MOVES

### Clive Gifford continues his series on the Amstrad CPC464's sound capabilities

In my last article I dealt with the ENT command, but only for the creation of a single rise or fall in pitch. What happens if we want to create an envelope with multiple rises and falls? The answer is simple and helps to show the flexibility of the sound commands available to you on the Amstrad.

The group of parameters following the envelope number are all concerned with one rise or fall. For each additional rise or fall, it is just a matter of adding on a separate group of parameters. You can have up to five separate groups after any one ENT command. If you wanted a sound taking half a second to rise and a quarter of a second to fall back to the same level but each consisting of five steps, then an ENT statement could look like this:

```
ENT 1, 5, 12, 10, 5, -12, 5
```

By quickening the rise and fall in the envelope and by adding a minus sign to the envelope number we can create a tremolo effect. The minus sign makes the envelope constantly repeat itself — a very handy addition to the ENT command. Here's a good

example of a tremolo envelope:

```
ENT -1, 15, 4, 1, 15, -4, 1.
```

The Volume envelope is just as, if not more, useful than the tone envelope for creating a wide and varied range of sounds. This envelope, controlled by the command, ENV, is somewhat different to the previous envelope.

When a note is played its volume may not remain constant. Think of a piano key being pressed. It reaches its highest volume very quickly before dying away almost as fast. In contrast, a note from an organ maintains a constant volume right until the very end of the note when it fades away. This principle is behind the volume envelope and is called ADSR. The idea is that every sound goes through four volume stages; the *attack* where the volume of the note reaches its peak; the *decay* where, as its name suggests, the volume falls back from the original peak; the *sustain* where the note's volume is either maintained or gradually reduced at a slower rate than the decay stage; the *release* where the sound's volume falls to zero. The simple

graph (Fig.1) shows a typical ADSR sound shape.

The ENV command does have similarities to ENT. Both must start with an envelope number and both have groups of parameters. ENV's parameters, however, consist of number of volume steps, the size of each step and the length of time each step lasts. A simple ENV statement would look something like this:

```
ENV 1, 5, 3, 10.
```

This would result in an envelope lasting a total of half a second and consisting of five volume steps each rising three volume steps.

For a full ADSR effect, you need a full set of parameters for each of the four parts of the volume phase. This results in a veritable beast of a statement with no less than 13 different numbers. Don't be put off by this command: when broken down into separate groups of parameters, the task of constructing efficient envelopes becomes a lot easier.

Below are a few envelopes created using ENT and ENV along with a simple sound effect attempting to simulate an envelope. Pressing a key on any of the envelope-based routines will make the computer play a different note and just by hearing a few examples you will be able to hear that some

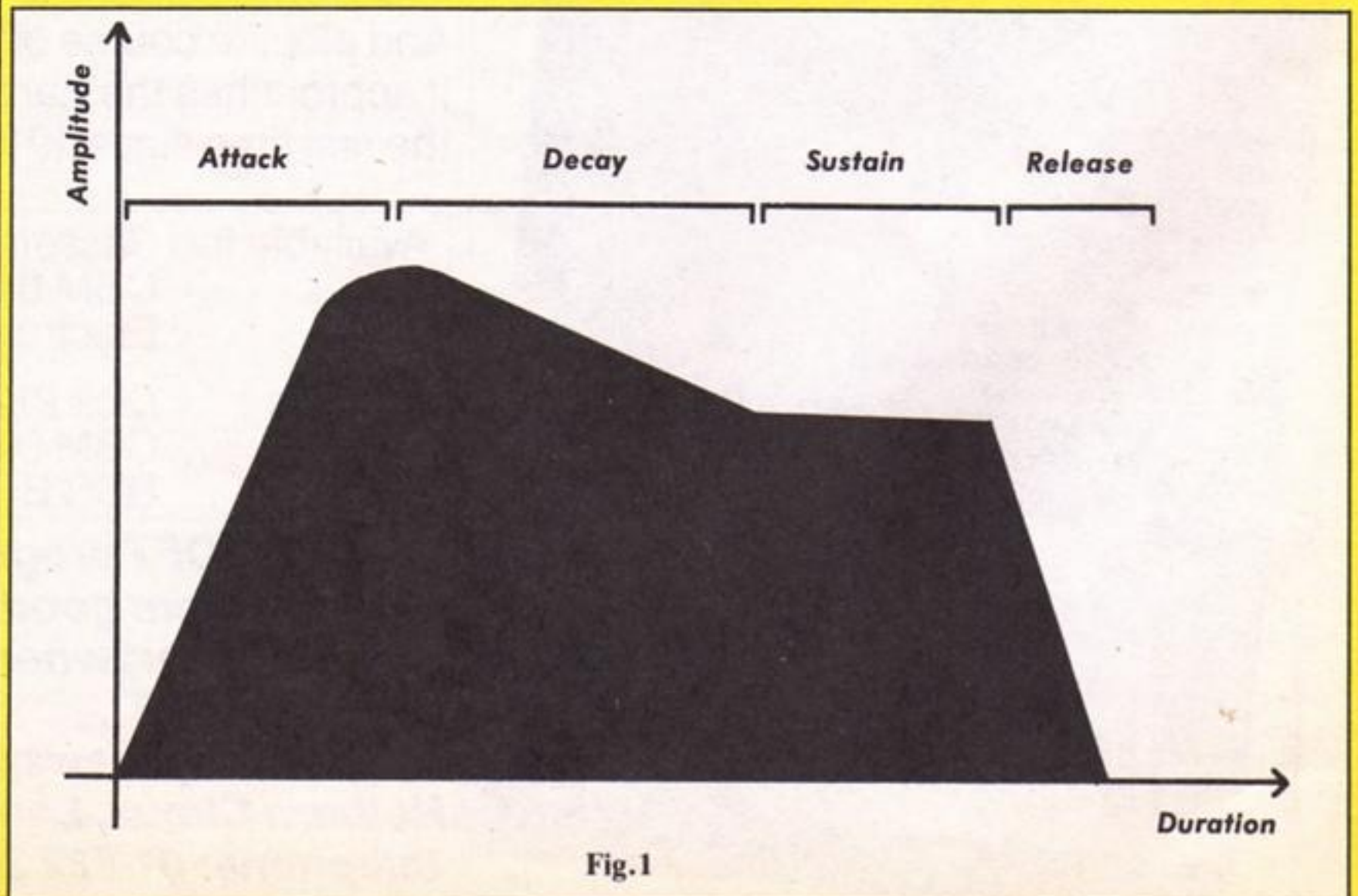


Fig.1



```
10 ENT -1,5,-15,1
20 WHILE INKEY$="":WEND
30 SOUND 1,INT(RND*400)+75,50,15,0,1
40 GOTO 20
```

```
10 ENV 1,15,-1,3
20 WHILE INKEY$="":WEND
30 SOUND 1,INT(RND*300)+100,45,0,1,0
40 GOTO 20
```

```
10 FOR G=1 TO 5
20 FOR T=7 TO 0 STEP-1
30 SOUND 1,80+2*T,1+3*T,T
40 NEXT: NEXT
```

envelopes work best with higher and some with lower pitches of note.

Note that with SOUND statements incorporating a

volume envelope, the volume level usually controlled by the fourth parameter of the sound statement is set to 0 as control is passed to the envelope.

```
10 ENT 1,15,2,1
20 ENV 1,15,-1,1
30 WHILE INKEY$="":WEND
40 SOUND 1,INT(RND*400)+20,15,0,1,1
50 GOTO 30
```



# Get more out of your BBC Micro with the New Marconi RB2 Tracker Ball

Marconi's new Tracker Ball is superior to either a mouse or joystick and is easier to use. The RB2 design incorporates Marconi's vast experience in making Tracker Balls for Air Traffic Control and professional equipments which demand maximum performance and reliability. It is drift free and gives more precise positional control - the cursor position on screen relates directly to fingertip movement on the ball. The three push buttons normally control the delete, return and copy functions but you can also assign your own functions to the buttons.



It's perfect, whether your micro is your hobby, an educational tool or a source of low cost CAD/CAM applications. It's ideal for word processing and games too, and unlike a mouse needs no regular cleaning.

If you're a Commodore or Spectrum user don't despair. There will be a Marconi Tracker Ball for you coming out in the Spring.

For full details please complete the coupon.

**ONLY £59.50**



**FREE!**

Utilities Program.  
Graphics Program for tape or disk.  
Micro Draw Program on floppy disk.



To: Central Trade Marketing Ltd.,  
Ashton Lodge, Ashton Road,  
Dunstable, Beds. LU6 1NP.  
Tel: 0582 61283.  
Please send details of the new  
Marconi Tracker Ball.

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Tel: \_\_\_\_\_





# VENTURES

**Peter Sweasey's in a jam this week with Danger Mouse in Black Forest Chateau. Read on to find out more.**

**T**ime to go a-venturing once again with HCW's regular column reporting and reviewing on everything of interest from the world of adventures and arcventures (arcade adventures). This week I shall be in a jam with Danger Mouse In Black Forest Chateau, comparing Colossal Caves, and climbing Mountain Palaces. The helpline will be dealing with Valkyrie 17, amongst others. Read on, if you dare . . .

**Reviews**

Danger Mouse is one of the most famous British cartoon characters. His comic secret agent exploits, along with bungling assistant Penfold and Chief, Kernal K, have won the hearts of many of the nation's children, along with quite a few adults! After the first DM game from Creative Sparks, Double Trouble, which was more of an arcade game, comes Danger Mouse In Black Forest Chateau, an adventure designed with younger players in mind.

A puzzling pi-beam has been zapping the world's leaders, creating a sticky problem. The source is the Black Forest, and that is where you must go, to track down the evil perpetrator, who, it comes as no surprise, is a certain Baron Greenback. Penfold is close at paw all the time.

This seemingly simple scenario is far more complex once you start playing. In fact the game is in two parts, one on each side of the tape. You start in a forest clearing, depicted in excellent graphics, as are all the locations. On screen is some simple text (though far better written and slightly longer than many "adult" games), then a question along the lines of "What next?" followed by a choice to enter the forest, follow the tracks, go to the hut or climb a tree.

Control is simple. You use the space bar to highlight, then press RETURN, and the game acts accordingly.



You may think this kind of multiple choice leads to a very linear, channelled adventure. But no, DMIBFC is a very entertaining game. As I mentioned earlier, the graphics are very good, particularly those of the cartoon characters, which are drawn in highest resolution. The text is attractive and witty, and the problems whilst not stunningly original, are interesting and not always as easy as they may seem at first.

For those eight-year olds this program is aimed at, it is excellent and should provide a real challenge, whilst not being impossible (if you go hopelessly wrong Penfold often comes out with a hint). Older people will probably like it too, particularly at parties — although it's a bit pricey for them considering it won't take as long to solve. DM fans will love it, of course. Ventures rating: 4 stars. It costs £7.95 from Creative Sparks.

I recently received a large number of titles from Duckworth, the book publishers. Amongst these was the originally titled Colossal Cave Adventure, another

version of the original Crowther and Woods mainframe game, which in case you don't know, started the whole world of computer adventures (good thing too, or else I would be without a job!) The game masquerades under many titles on the home micro: Classic Adventure, Colossal Caves or the famous Level 9 version, Colossal Adventure. I thought it was time to stage a fight — so, here we go, with Level 9 vs Duckworth.

The scenario is pretty simple, but for a change I can't call it unoriginal! Having rescued a stranger from imminent mugging in a tavern, you are given a map, showing the location of some hidden caves which contain fabulous treasure. The map blows away just as you approach the entrance, and you stand alone.

First locate the entrance, then work your way through a network of rooms, passages, traps, puzzles and mazes, which are inhabited by various unfriendly creatures. Some of the problems are now classics, such as the troll, pirate, dragon and birdcage. As the





instructions to the Duckworth game say, you can't call yourself an adventurer until you have played this!

It is virtually impossible to criticise the actual game, which can be recommended to anyone, as long as you can tolerate mazes (there are plenty in this game). But which version should you choose?

On the whole, the differences are very subtle. The vocabulary is more friendly on the Duckworth version, but Level 9 provides more verbose descriptions: the former prints "You are in a maze of twisty tunnels, all alike" whilst the second says "You are in a maze of twisty little passages, all the same". The countryside is more

extensive in the Level 9 version, but I found it slow and not very responsive.

Presentation is better on the Duckworth game, which also has a redefined character set, and offers you help if you are struggling — in return for hard-earned points, however. Level 9 has better instructions and packaging, and also introduces a new end game, replacing the original two locations with 70.

I would choose Duckworth's version if I was a Commodore 64 owner. It is £2 cheaper at £7.95 and generally more pleasant to use. The Level 9 game is not up to the high standard of all its other material, but nonetheless pretty good, and of course available

on far more micros, including the oft ignored Oric and Memotech, plus even the Lynx and Nascom.

Finally this week, another Duckworth game. This uses the same programming techniques as Colossal Cave Adventure, namely those outlined by Peter Gerrard in his book Exploring Adventures on the 64. He was the author of the aforementioned Colossal Cave Adventure, but this is written by John D. Ryan.

You are transported, for the sake of convenience, to a mythical land, and for some reason are standing on a mountain ledge. Nearby is the

entrance to a palace, filled with — surprise surprise — treasure. Being the greedy type, you enter. The door closes behind you. Can you escape with the riches?

The fact that this palace is on a mountain seems to make very little difference in what is an excessively average game. There is nothing special, original or new; locations, descriptions and problems all seem familiar. Vocabulary is adequate. There is a real rip-off of Colossal Cave at one point — a ghost appears and keeps throwing a magic knife at you, which frequently misses.

In general, although competently written, I can't think of any reason to spend £7.95 on this, which explains my Ventures rating of 2 stars.

### Helpline

My elfling secretary Gorand has been hard at work on Valkyrie 17 recently. She did something obvious which I had overlooked — swim out to the boat then take a dive. If you're still stuck at the top of the ski slope, make sure you have read the book you found when escaping the hotel. Take the bottle from the shop to pour over those piranhas. The ring pull can be used in the telescope, and if you need some currency, pawn the necklace. You'll need fuel and a parachute for the plane, go west and search the straw. To go back up to the hotel — pull a few strings.

Spiderfans might be having problems spinning a web. You must only be carrying those chemicals you need — leave the rest behind. Then just enter the lab and mix away.

Alien 8 players might be moved away by what can be best described as "those things which look like your materialization". To regain your self-control drop something on it. The same hint stops blocks from vanishing and sinking. Thanks to Chris Lovelace for supplying those tips.

News of more tasks next time, along with the other Duckworth releases, an excellent arcventure, and more exclusive hints. Happy venturing!

Send your problems, hints and views on adventure and arcventure games to Ventures, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB.



# PERIPHERAL

**Check out what our expert reviewers think of the Discovery 1 and Panda cassette interface before you buy**

### **Panda Cassette Interface**

One of the drawbacks of all Commodore computers is the requirement for a dedicated cassette recorder. This is not only wasteful but also expensive. A number of companies have identified this problem and produced products such as this interface to make life easier.

The concept is quite simple. This interface is a small box which plugs on to the cassette port of the 64 or VIC. The usual EAR, MIC and REMOTE leads come from the interface allowing connection to many different types of recorder.

The connection of the interface couldn't be simpler with all leads clearly marked. I would have liked an index on the unit to preclude accidental connection upside down. Saving and loading operations are much as before, except that when you press Return after entering the command the screen blanks before you see any key-pressing instructions.

To assist the use of the unit, there are two lamps, one labeled SAVE and the other LOAD. The LOAD lamp flashes when a program header is found or the program loads. This helps with the searching of the tape. The SAVE light glows when programs are saved. A phase switch is provided to cater for different recorders and tape types.



Overall, an excellent product which works well. The unit does alter the value of location 1, which could give problems with certain items of software. A.W.

**Price:** £17.99

**Publisher:** Pact

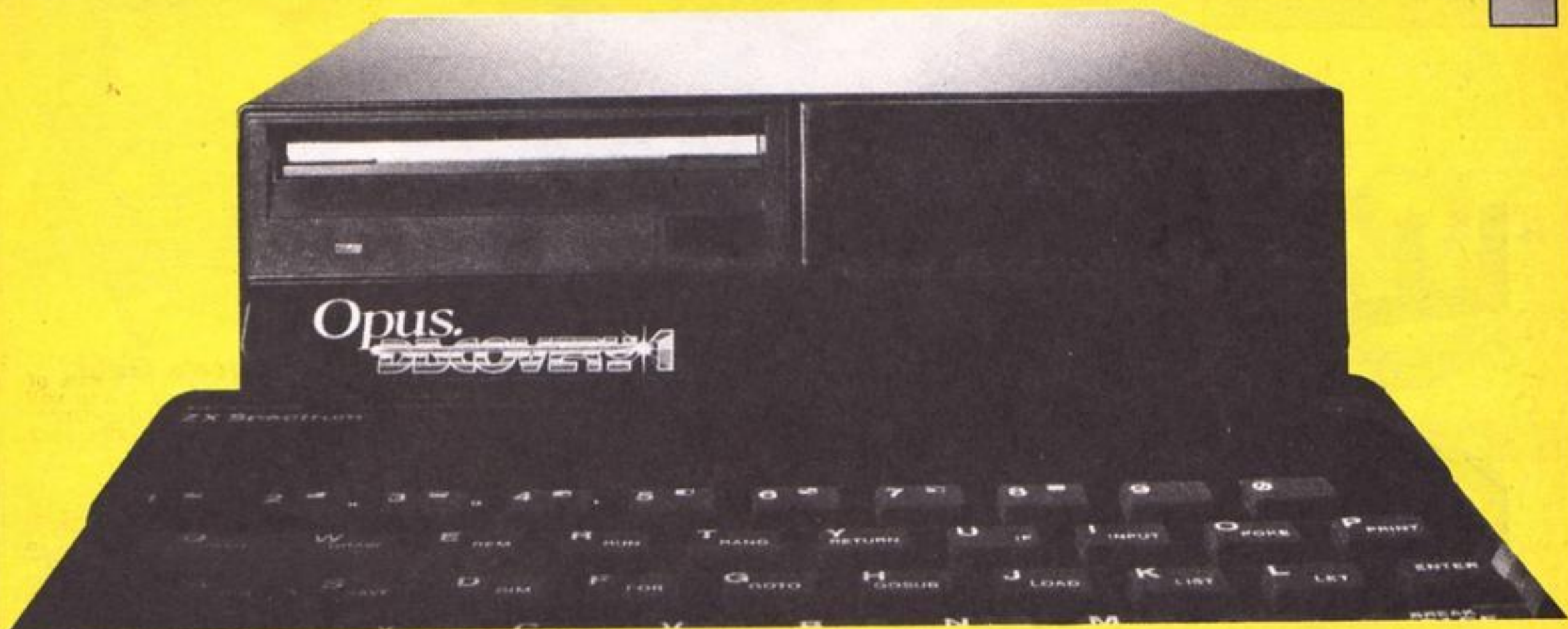
**Address:** PO Box 50, Peterborough

**C64**

**VIC-20**







**Discovery 1**

Discovery 1 from Opus is a 3.5-inch disc drive for the Spectrum — and much more. Firstly the Discovery package also includes a joystick port and a Centronics parallel printer port.

The unit is a large black box which is attached to the rear of the Spectrum; a base plate comes under the computer and is screwed to it for security. The drive is then above the keyboard to the left, while on the right there is room for another drive. The new unit supplies power to the Spectrum via the edge connector so only one plug is necessary.

The discs operate using shortened Microdrive commands, so a catalogue is obtained by CAT 1 and a load command is LOAD \*"m";1;"xxx". However this is where the similarity to Microdrives stops; the drives are much

quicker than Phloppys and, more importantly, much more reliable.

Also the use of disc rather than serial tape has allowed Opus to introduce random access files, thus making the Spectrum with Discovery 1 a much more powerful package; many more database applications may now be implemented as a file and needn't be read into memory simply to extract one item.

The printer port requires a special cable at the Spectrum end but may then be connected to any Centronics printer. The Discovery requires that an output channel be opened with OPEN£3;"t" and then programs may be listed with LLIST in the normal way. The one bad feature of this is that the Spectrum graphic characters are all printed as ? which isn't very useful!

The joystick port is switched

on with the command FORMAT "j";0, which is strange but works well enough. This does mean that you must remember to do this before loading a game from tape but I assume that any disc-based software would do this for you.

This brings me to software. Opus has scheduled a number of well known titles for the launch of the Discovery unit. The software will be supplied on 3.5-inch disc and will consist of two or three major titles, retailing at about £15 — not bad value. The Discovery 1 unit

will cost £199.95 and so is a bargain, if you consider the joystick and printer ports. Also available at the launch will be the Discovery Plus, which is the second drive for the Discovery 1 and Discovery 2 which has two drives already. Finally I should mention that Discovery is only available from Boots. **J.G.D.**

**Price:** £199.95

**Manufacturer:** Opus

**Address:** 158 Camberwell Rd, London SE5 0EE



... **IT'S EGGSILLERATING**



SOFTWARE SOFTS



**Wizard's Lair**

This new game from Bubble Bus is an Atic Atac look-alike. However, instead of being trapped in a haunted mansion looking for the right keys to let you out, you are searching underground caverns for parts of the golden lion, the key to your escape.

The game is turbo-loaded and apart from an initial problem which was resolved by experimenting with the volume control, is quick and trouble-free. Following a colourful title screen an option page is displayed. On this you have the choice of Kempston or Sinclair 2 joysticks, keyboard control or user defined keys.

Playing the game is a fast and furious experience as you guide Pothole Pete around a vast subterranean maze of caves, rooms and passages. In the various areas of the maze there are treasures to be collected, articles of food to help your strength levels and extra weapons to aid you in your fight against the dozens of nasties you encounter.

In some rooms there are magic spells. If you collect one of these it is only utilised if you have some gold. You then have a choice of more treasure or extra strength or weapons. The graphics in the game are well done, although very similar to its predecessor. In all this would seem to be a case of looking at a good game and re-writing it with the rough edges smoothed off to make an even better game. **M.W.**

**Price:** £6.99

**Publisher:** Bubble Bus

**Address:** 87 High St, Tonbridge Kent TN9 1RX

**SPECTRUM**



**Sam Stoat Safe Breaker**

Gremlin Graphics, who brought us such cuddly friends as Monty Mole, Beaver Bob and Percy Pigeon, now presents Sam the felonious Stoat. Your task is take Sam on his house-breaking sortie. You must find a bomb and a match with which to break into the safe, and then collect the diamond and leg it.

You move about the various rooms via a network of mouseholes. Each time you enter a mousehole, you must negotiate a series of poles sticking out of some water. Use these as stepping stones, but since they have a habit of moving up and down, this is rather tricky. Since I haven't managed to complete this step, I can't comment on the point of this exercise. Each room is occupied by sundry nasties, as expected, which impede your progress. There are also trinkets to pick up. Somewhere in each house is a bottle of stoat revive which enables you to complete the task in hand.

The graphics are to a good standard with the screen representing either a room or part of a room. Animation is average. There are four houses with 20 rooms in each, which offers a fair variety. The instructions supplied with the game are poor, leaving a number of questions unanswered. The usual choice of keyboard and joystick interfaces are catered for.

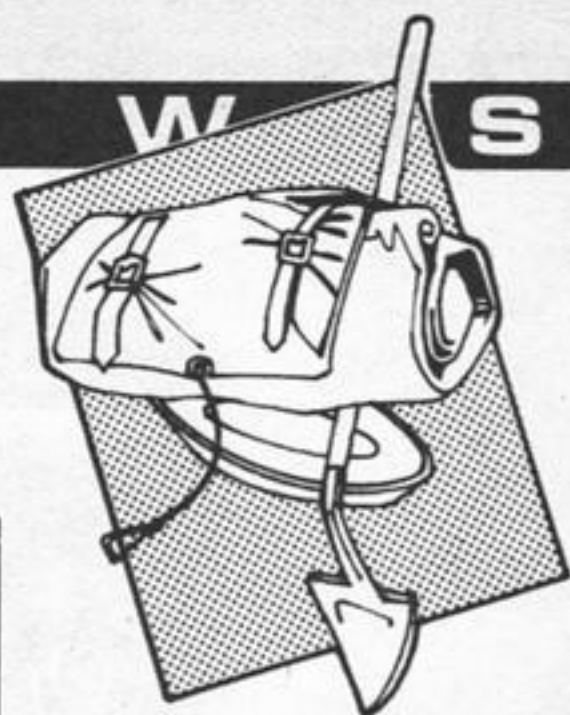
Overall, rather a weak game which doesn't really compare with the state of the art software for the Spectrum and is of limited novelty. **M.W.**

**Price:** £6.95

**Publisher:** Gremlin Graphics

**Address:** Unit 10, The Parkway Ind. Centre, Heneage St, Birmingham B7 4LY

**SPECTRUM**



**Dragon's Gold**

The current dearth of moving graphic adventure games seems set to continue.

Dragon's Gold is yet another version with chunky graphics which fall well behind the quality set by others.

Without the need to collect objects en route, and with three lives to squander, success is entirely dependent upon fast reactions on the Joystick.

The gold is to be found within a six-roomed castle, small by any standards.

Hazards to be avoided are dust, bubbles, spiders, robots, moving walls and of course the dragon.

You arrive at the castle carrying an empty chest. While the chest is empty you wend your way through the castle to the dragon's room, wherein lies the gold.

On finding the gold you go to the first room where the chest was deposited and claim the reward.

A guaranteed 1000 points for bringing the gold out safely is increased by the addition of bonus points. These will accumulate each time your magic missile spell shooter annihilates one of the nasties.

Full instructions are provided on screen and are repeated on the cassette inlay.

This retrograde step in games programming lacks all signs of originality. Even the simple hi-score feature has been cut to the core.

All the rooms are presented as ground plans, with ne'er a view of the castle, however small.

Dragon's Gold certainly doesn't represent value for money in today's volatile software market, where superb graphics and sound are available in abundance. **D.H.**

**Price:** £8.95

**Publisher:** Amsoft

**Address:** 169 Kings Rd, Brentwood, Essex

**AMSTRAD**







### Vampire Killer

This game was originally released for the Spectrum and is now available for the Amstrad. The objective is to get from the ground floor of Dracula's house up to the 12th floor and kill Dracula before midnight, otherwise he flies away. You are allowed eight minutes to do this. On each floor there are twelve rooms. Some are empty some contain items you need to kill Dracula.

Your score depends on how many items you collect on the way. Arrive without enough of these and you can't kill him — he kills you.

There are lifts to take you between floors — some go up and some go down. On the way you meet spiders and bats which you can shoot, if you have any bullets left. Some doors hide skeletons that 'shock' you. Too many shocks and you run out of the house terrified!

I liked the title page, which is just as well as the tape takes 10 minutes to load. Loading seemed unreliable, about a 50-50 chance of first-time success. Instructions are clear and simple. There are three levels of difficulty, each successive level giving less time to kill Dracula. The graphics are colourful and the sound entertaining, although repetitive. Key response is rather slow, and our vampire-killer moves rather ponderously along the corridors.

After a while it all becomes rather predictable and tedious — I kept wanting to go for a cup of tea. However, any attempt to produce cheap software for the Amstrad should be applauded and this game is certainly very attractively priced. **A.W.**

**Price:** £1.99

**Publisher:** Scorpio Gamesworld

**Address:** 307-313 Corn Exchange Building, Manchester 4



### Give My Regards to Broad Street

You've seen the film, heard the song, now play the game!

The plot of the film is used for the game. You play Paul McCartney and you have lost the master tape of your latest chartbuster. Thus the game involves rushing around London in your car attempting to meet up with the members of your band. This is made easier by the fact that all the band use the tube and you have a computer in your car which tells you when any member of the band uses a travelcard.

When you manage to meet a band member he gives you as many notes of the song as he can remember until the whole song is recanted.

The graphics are excellent and consists of a large map of London which scrolls in the direction of travel. Once outside a tube station the car can stop and then a view of the station is shown with a few famous landmarks in the background if appropriate. Sound consists of famous McCartney tunes such as Band on the Run and No More Lonely Nights.

The game is very difficult to master as one must first manage to control the car and then learn the likely movements of the band members from biographies on the inlay.

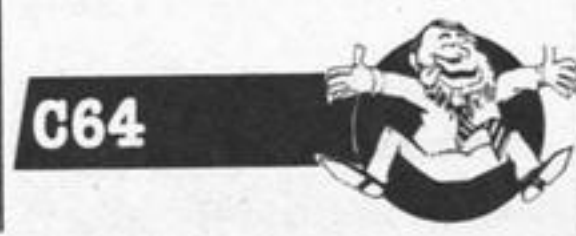
The game comes with a large map of London showing all the tube stations which must be memorised if any progress is to be made.

This game is excellent and highly recommended. **J.G.D.**

**Price:** £7.99

**Publisher:** Argus Press Software

**Address:** 222, Regent St, London W1



### Andoid One

A high-speed, action packed arcade game that requires instantaneous response to the many alien attacks encountered.

These aliens are of four types: Groupies, Skaters, Bouncers and Wanderers. Each attack in their own style and need to be avoided throughout the game.

Objectively you have to overcome the defence mechanisms of the reactor complex, find the transporter capsule to enter the inner chambers and subsequently find and destroy the reactor.

On completion of this hazardous mission you then have another trip fraught with even more danger.

Good graphics and sound bring the game to life giving more depth than the two-dimensional screen imagery.

Never certain whether I had five lives or only four to squander, it did seem that a lot of playtime was spent blasting away at brick walls which were obviously built when bricks were 10 a penny.

The cleverly designed opening screen with a scrolling message along the bottom line leaves no doubt about the actions to be taken.

User-friendly throughout, an instruction page which is clear and concise is followed by a brief demonstration routine. Being largely an amalgamation of maze games and shoot-outs the program lacks any originality, but is nevertheless a good implementation of this genre.

This is grossly overpriced for this type of game, which is now outdated with the advent of 3-D graphics and expansive use of the Amstrad's sophisticated sound commands.

If you need a laser blaster then this is as good as any other, but that's all. **D.H.**

**Price:** £7.95

**Publisher:** Vortex

**Address:** 24 Kansas Ave, off South Langworthy Rd, Salford M5 2GL



**Flipped**



**Hooked**



**Keen**

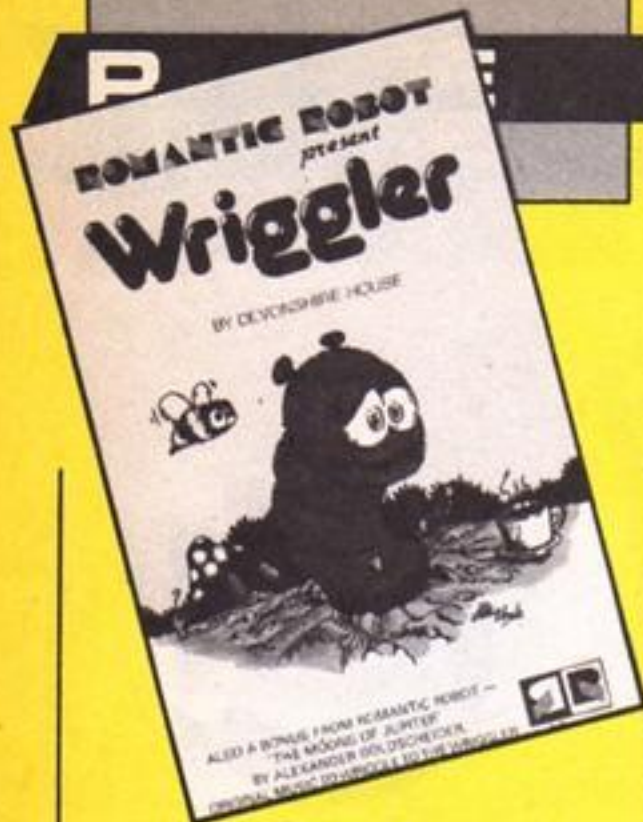


**Yawning**



**Comatose**





### Wriggler

It's the annual Maggot Marathon, folks, so wriggle right up! You control one of the contestants at the off. As soon as you start to follow one of the other maggots, however, you soon realise that this is no ordinary arcade game.

You start in the garden, a complex maze of walls and flowers nicely executed in full colour. Though the maggot animation is good, the marauding ants, bugs and spiders which begin to assail you are really rather fine. With luck, you may find some ant powder to help you, as well as several other useful objects.

This is only the start, because if you manage to find your way out of the garden — and it's not easy — you discover that this is an adventure with many locations, broken down into four major areas, the garden, the scrubland, the underground, and the mansion, to say nothing of Hell. Each of these has its own hazards and characteristics like platforms, levels and conveyor belts.

Your eventual aim is to find the finish, but it will certainly take you many evenings of learning the significance of the different objects. You won't learn the maze, however, since it's different each time! Good sound too, with a "music to wriggle by" track on the tape.

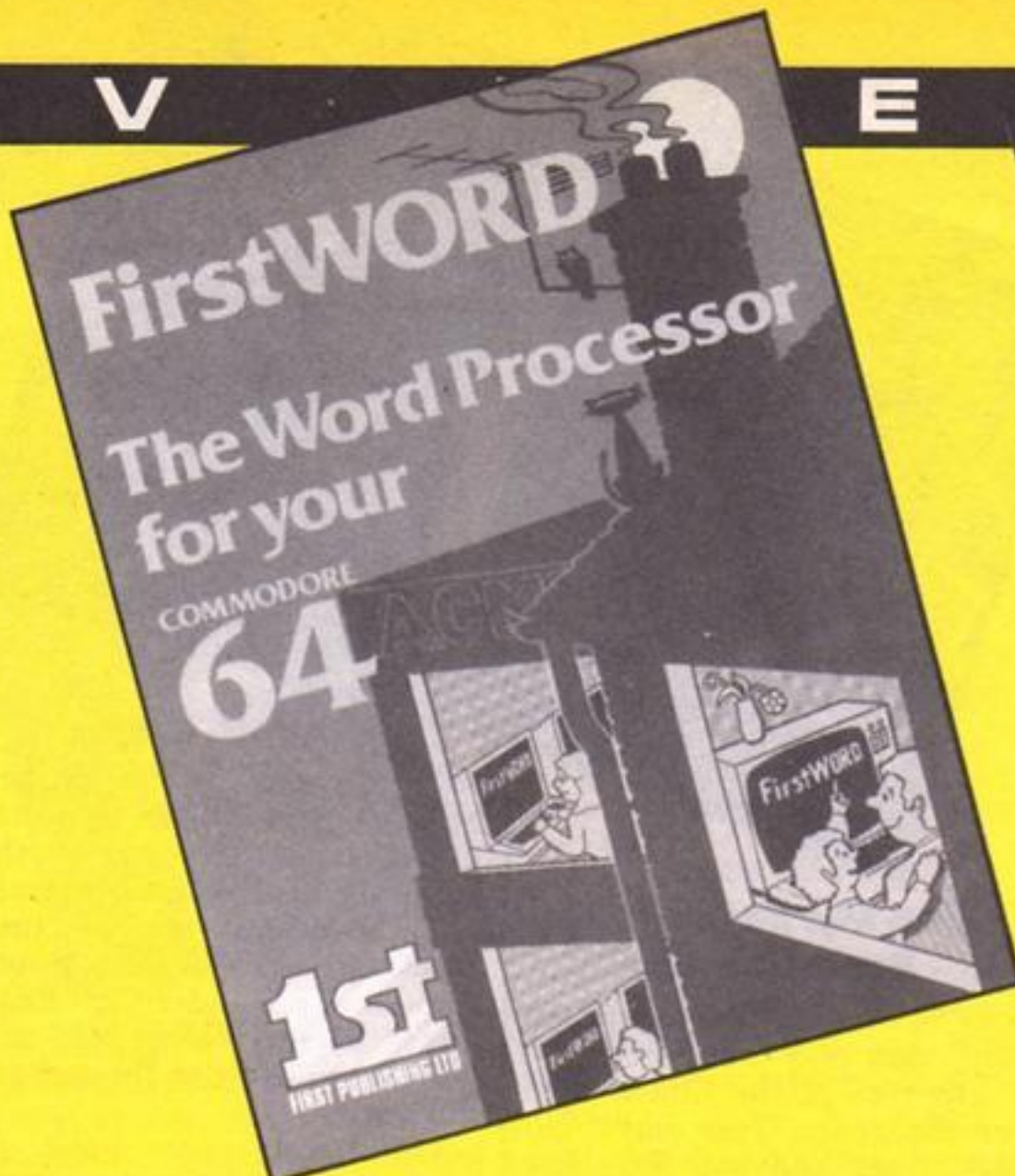
A number of keyboard control configurations are catered for, together with Kempston and Sinclair joysticks, and the package is distinguished by abnormally literate and full instructions on the illustrated inlay card. Absorbing fun, well produced and at the right price. **D.M.**

**Price:** £5.95

**Publisher:** Romantic Robot

**Address:** 77 Dyne Rd, London NW6 7DR

**SPECTRUM**



### Firstword

One of the nice things about the C64 is that with a printer and disc drive it can make a useful business machine at a relatively cheap price. Firstword is a word processor for such a set-up.

It's worth mentioning that the program isn't suitable for editing sequential files created by other programs. Firstword stores data as program files and can only read files created and stored by itself.

The software is supplied on disc and will only work with a disc drive — the tape is not supported. Serial printers connected via a suitable interface (C64 printer/RS232) work, although I was unable to find out whether parallel printers connected to the user port will.

The comprehensive 60-page manual comes as a set of loose sheets held together in a hard-backed ring binder. One problem is that pages can easily get missed out — mint came without pages 39 and 43.

When entering text any leading spaces/blank lines will be ignored. These are put in using special control characters. It soon becomes apparent that the whole program is parameter driven. You can set the system to your own requirements and use it in a very flexible way.

All text editing and disc/output commands are entered using menu options which appear at the bottom of the screen. Selecting an option

**Price:** £34.99

**Publisher:** First Publishing

**Address:** Horseshoe Pk, Pangbourne, Berks

takes you on to a sub-menu: this may seem long-winded if you know what you are doing but if you don't have the manual handy then it can be a great help.

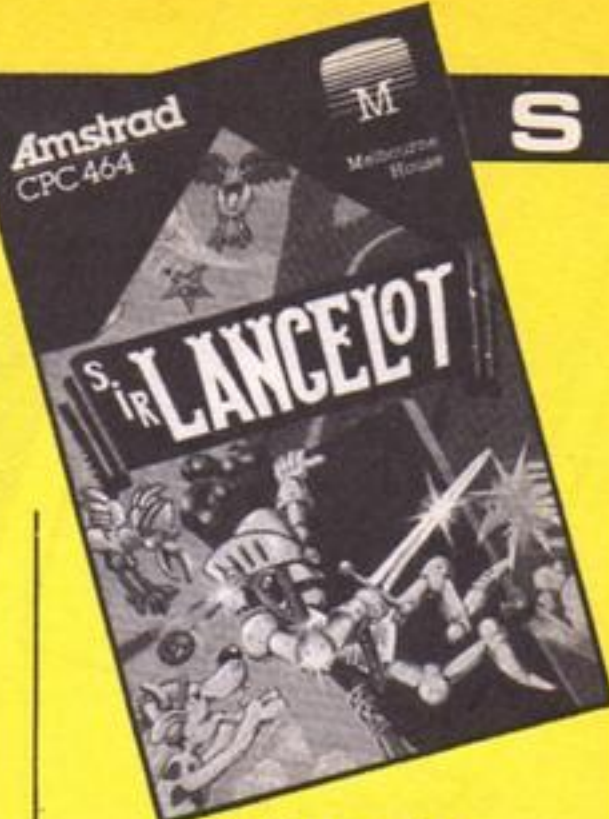
Insertion and deletion of single characters and lines is available directly. In block mode you may delete, copy, transfer and save blocks of text after you have specified the range of lines. Find and replace is available as a menu option. This can work with either single words or a string of up to 38 characters.

Mail merge is available, and there is a built-in calculator — very useful. You place the cursor over the various numeric sections in the text, perform the basic mathematical functions and the answer is shown somewhere else on the page. Ideal if you are preparing a bill or totalling up numbers.

When you print out your document you can specify header/footer messages, automatic page counting, right justification of text, left and right margins, print type, etc. The flexibility and versatility means that large changes in the output are very simple to achieve.

My only grumble is that the price is slightly too high for what is only a word processor. Some other packages may also be used as a text file editor; from a programmer's point of view it would be useful to be able to do this as well. **K.I.**

**C64**



### Sir Lancelot

Interesting to compare this to Manic Miner, to which it obviously owes much. Here we have a castle with 24 rooms, but again the aim is to collect objects, whilst assailed by assorted moving bits and bobs. The intro music is catchy, but the game itself is punctuated only by zaps and zings.

Unlike MM, access to the rooms can be selected. On the initial screen, which has no "aliens", vast arrays of objects are awaiting collection. Each one represents a further room. When you collect the object you are whisked away to that room to try your luck, and if you succeed in clearing that, you are returned to Merlin's Magic Teleport, to select another object and room. The whole lot can be seen from the demo mode, and they are certainly a challenge!

Graphically, the game is slightly more sophisticated with some multicoloured sprites, and a better selection of colours, though no green-screen option. One of my tame games testers likened the graphics to those found on the Atari games console. Smooth and impressive but with a slight chunkiness.

One small ideosyncrasy is the movement of Sir Lancelot, whom you control. Surprisingly, he can be persuaded to walk on thin air, but won't jump vertically. He needs lateral encouragement too!

A tricky, addictive, absorbing game which capitalises on the Amstrad's features, without breaking the bank. It may not have the ownership "snob appeal" of the "cult" conversions, but offers many hours of torturous enjoyment. Recommended. **D.M.**

**Price:** £6.95

**Publisher:** Melbourne House

**Address:** Castle Yd Hse, Castle Yd, Richmond TW10 6TF

**AMSTRAD**







**Slapshot**

Well, I suppose it had to happen. After the unbeatable International Soccer it was on the cards that ice hockey would be the source of a game. The layout of the game is pretty standard. You are given the view of a section of the playing area. As the action moves, the screen will scroll to follow the action — just like a TV camera.

The game is for two players only, which is a bit of a shame. Only one player from each side is in play at any one time. This player has a different colour to the rest.

If the puck is loose, the nearest players will approach it, even if they aren't the current players under control. If another player gets near the puck, control will pass over to that player.

The goal keeper and defender are linked so that both can be controlled. By varying the handling of the joystick and firebutton you can make the players perform different actions. The goalie, for example, has three save actions. You can even bodycharge an opponent, but don't overdo it or you'll get penalised.

The graphics are excellent with accurate design of figures and realistic animation. The background is in two colours but looks effective. The crowd is a sea of faces which move during the game. The use of sound is limited but there is accurate soft speech and applause.

Overall this is an excellent and very exciting simulation which is good value at the price.

A.W.

**Price:** £8.99

**Publisher:** Anirog

**Address:** Unit 10, Victoria Ind Park, Victoria Rd, Dartford, Kent

**C64**



**Pascal 64**

If you're bored with BASIC, or looking for an easy way to produce machine code programs, then this new Pascal compiler is sure to interest you. It produces true machine code programs which, once completed, can be loaded and run without using the Pascal package — and you write these programs not in a different low-level language but in a highly structured, high-level language which many people consider to be much better than BASIC.

The disc contains a loader and a linker, for inserting existing routines into new programs — both of which you can transfer to your own disc, if you wish — as well as the compiler, and comes with a smart 70-page loose-leaf manual. This is clearly intended to explain the rudiments of Pascal to experienced BASIC programmers, rather than to teach programming to complete beginners; it does not repeat any information which is adequately covered in the Programmer's Reference Guide.

If you are not already familiar with BASIC you would probably find this package incomprehensible — and if you have no previous knowledge of Pascal you would be well advised to obtain a good book on the subject, rather than relying solely on the manual. A list of suitable reference books is provided.

Pascal programs are entered using the normal BASIC editor; this is possible because the Commodore doesn't check the syntax of BASIC program lines on entry. Each line, therefore, has to start with a line number, although these aren't normally required in Pascal, and are ignored by the compiler. The program is saved on disc as a

**Price:** £35.99

**Publisher:** First Publishing

**Address:** Unit 20B, Horseshoe Rd, Horseshoe Pk, Pangbourne Berks

BASIC program, then the compiler is loaded and run. Compilation is a slow process; a demo program from the manual, about 25 lines long, took several minutes to complete. The compiled version is automatically saved on disc. It then has to be loaded using the special loader program; after this, it can be saved and re-loaded as a normal machine code program.

The most striking thing about Pascal is the wide range of data structures which are supported — real, integer, boolean, char, array, packed array, string, set, record, file and printer, plus user-defined data types in case these aren't enough for you. The next most significant feature is the structure of the programs, which have to be written in blocks, in the way that BASIC programs should be written but all too often aren't.

This version of Pascal includes commands to set up and clear the hi-res screen, to plot and unplot points and to define sprites, but there are no special sound commands — POKEs have to be used here, as in BASIC. Machine code routines can be included; the same company produces an assembler/monitor which can be used in conjunction with this package. There is no provision for including BASIC routines, but you could presumably use Pascal to produce a machine code routine to be called from a BASIC program if you want to mix the two.

The use of files, including relative files, is well covered, and there is also an interrupt command, allowing simultaneous execution of the main program and a subroutine.

Overall it's an interesting package, and can be recommended to competent BASIC programmers wanting to move on to something different.

M.N.

**C64**



**Estra**

To the World's greatest psychic: "Recover stolen Snake God Statue, believed to be broken into 24 pieces and hidden in secret Raal Temple".

It makes a change from James Bond or the usual ladder climbing adventures. After an introduction which gives instructions and advice upon how to deal with the dangers you will encounter on your adventure, you are treated to a lengthy, virtuoso performance of computer generated music before commencing action inside the temple.

The temple cannot be physically entered so a force field is established at the centre of the screen where the recovered pieces of statue are assembled. The pieces are distributed round the edge of the screen. To begin with it seems a simple task to collect and assemble the statue but you have to contend with many types of nasties which float around and get in your way. A force field protects the pieces of statue and a real nasty, resembling a crab, can attack at any time.

Added to this is the problem of replenishing your psychic energy by collecting supplies as they appear. There is also a problem due to the narrow entrances to your force field. Any collision with its walls means a life lost.

Higher levels of play await plays who can assemble the statue but I found the first level difficult enough. There are comprehensive screen instructions delivered in a most unusual way as well as sound on/off and pause facilities. An entertaining game.

J.D.

**Price:** £2.50

**Publisher:** Firebird

**Address:** Wellington House, Upper St Martin's Lane, London WC2H 9DL

**BBC**







### Alpha-Beth/ Alpha-Gen

Alpha-Beth is a computer game which is fun to play and has the added bonus of being educational. After fast loading a menu page is displayed. From this you can choose whether to play with the keyboard or joystick, change the keys used to play the game, display or alter the high-score boards or load an alternative database — this is where Alpha-Gen comes in.

The graphics consist of a screen depicting a computer. On the VDU there's a question for you to answer. You do this by making Beth jump about the keyboard to the appropriate letter and then entering that letter.

When you have completed the word or words of the answer you take Beth to the Enter key to finish.

There are, of course, the obligatory nasties trying to stop you on your journey around the keyboard — these can be a nuisance and detract from the overall performance.

Alpha-Beth comes with an in-built general knowledge database. The publishers hope that in future databases for a wide range of subjects will be available.

Alpha-Gen is a separate package which gives parents and teachers the opportunity to build sets of questions relevant to the situation.

Overall this is a good idea well implemented, with the right balance of fun and learning. At £5.75 it's a good buy. **M.W.**

**Price:** £5.75

**Publisher:** A 'n' F

**Address:** Unit 8, Canal Side Est, Woodbine St East, Rochdale, Lancs OL16 5LB



### Quick Thinking

An educational program which is entertaining and good value for money? Read on.

There are two "games" on this cassette, each offering practice at the basic arithmetic skills.

First there is Sum Vaders. You choose whether to add, subtract, multiply or divide. A flying saucer with a number on it crosses the sky and drops a robot which also has a number. You have one chance at typing in the right answer. If you're correct you destroy the robot; wrong and it lands. When five robots land you are destroyed in a display of pyrotechnics! There is also a choice of skills which will stretch anyone.

The second program is Robot Tables. Again you can choose skill levels and specific tables. But in this program you also get to choose foreground and background colours.

The idea is to make quick decisions. A machine is chugging away making robots. Along the conveyor belt come the boxed components which are numbered and have to match the sequence in the multiplication table you're working on. Sounds confusing? It's quite a simple idea but sounds complicated when you explain it. A good feature is the ability to check for persistent mistakes after completion by the visual representation of good and deformed robots.

As the title suggests it's not intended to teach but to sharpen your reflexes. For this purpose it is excellent. So long as it's taken in small doses this cassette could prove to be quite valuable. Enjoyable graphics and simple to operate commands, which at this price has to be excellent value. **M.P.**

**Price:** £2.50

**Publisher:** Mirrorsoft

**Address:** Holborn Circus, London EC1P 1DQ



### Tales of the Arabian Nights

"The saga of Imrahil the Kalendar Prince on a quest to free the Princess Anitra from the harem of the evil Sultan Saladin." So sayeth the blurb.

As the Prince you have to work your way through eight screens to free the Princes and fly over the city. Many of these have similar objectives: to collect the various letters which spell out the word Arabian. The first screen, for example, has you on board Sinbad's ship avoiding an octopus, cannon and a dangerous bird which I assume is a roc. Three of us were struggling for a long time to complete this screen and found it too difficult. It may be that you have to collect the As in a specific order but we couldn't get down from the rigging after avoiding other obstacles. The net result was frustration. Particularly annoying was the fact that the letters were replaced when you lost a life even when you were on the point of completion!

Perhaps in anticipation of this there is an option to view the other screens which have flying carpets, ladders, cities, a river and even a blind carpet weaver called Ahxmihnta!

Disappointing choice of colours which seemed insipid to me although the graphics were otherwise well drawn and imaginative. Some of the animation was flickering and spoiled the overall smoothness of the total effect.

A good game in principal but I would have been much happier if I could have got through the first screen, so be prepared for a tough challenge. **M.P.**

**Price:** £6

**Publisher:** Interceptor

**Address:** Lindon House, The Green, Tadley, Hants



### The Ring of Darkness

A conversion from the Spectrum, yet again, of a role-playing adventure/graphic/arcade game. Some combination, huh? During loading a fine screen is displayed, then you are called to define your character. Having named the noble Nurdwarbler, I chose to make him an elf with rather more intelligence than strength and agility. He could have been a warrior or a thief, but with different results.

Loading then continues, and when over, a small non-animated stick-man is shown on a map-com-maze, which is littered with forests, lakes, sea, hidden attacking bandits and the occasional castle. Enter one and the screen changes to show a plan of the interior on which your character is shown. As with the rest of the game, you can steer him via the cursor keys to the counters of the various shops where you may buy your weapons, food, transport etc.

Beware the jester, however! He nicks your goodies. In each castle is a king who, if you ask, will set a task — probably recovering an object — as you journey the land.



Though graphically rather crude — some animation would have been nice — the landscape scrolls very smoothly beneath your man. Also beneath him is a vast underground maze, which, should you enter it, is drawn in very fine 3-D perspective. Goodness knows how you get out though! I tried for ages. **D.M.**

**Price:** £9.95

**Publisher:** Wintersoft  
**Address:** 30 Uplands Park Rd, Enfield, Middx EN2 7PT





# MYRDDIN

## 3D LANDMARKS YOU CAN FLY AROUND

## SUPERB REAL TIME SIMULATION

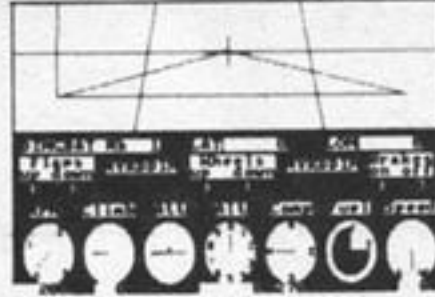


# MYRDDIN FLIGHT SIMULATION

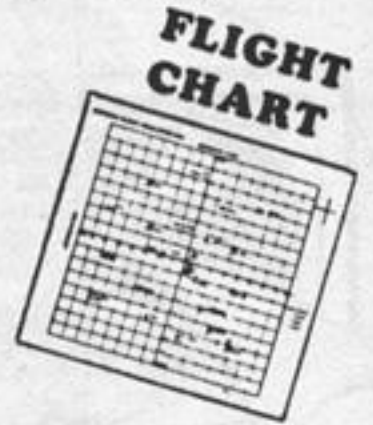
## AMSTRAD CPC 464



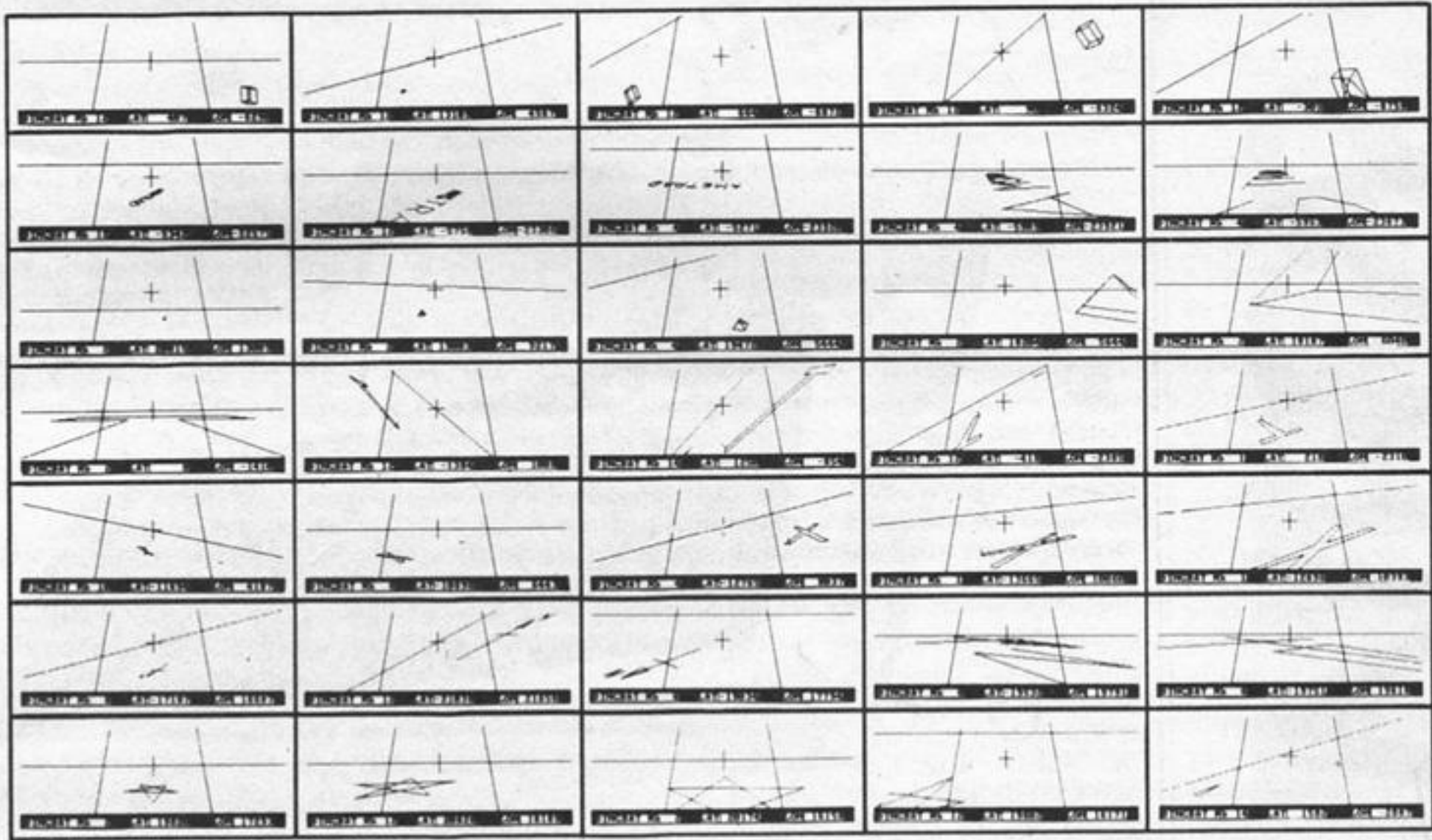
MANUAL



FULL SCREEN  
DISPLAY



Here are some screens from a typical flight showing the view from the cockpit (top half of screen) produced as printouts of the actual simulator.



A real time simulation with 3D graphics uses a massive 64000 x 64000 longitude & latitude flying area, making each flight completely different. Developed under pilot instruction to give realistic flight effect. The view through the cockpit gives moving 3D graphics.

Comprehensive instrument panel with moving needle meters & digital displays. 15 aircraft types with varying control sensitivities & speeds of between 100 - 500 knots.

3 runways available for refuelling, take off & landing. Ground and landmark orientation correct with all flying attitudes (rolls etc.).

The 3D graphics are still accurate when you fly upside down.

3D landmarks you can fly around.

Comes complete with manual & fully detailed chart of landmarks & airfields.

Joystick or keyboard operation.

*If your local dealer doesn't have it in stock yet, order from us direct.  
For despatch within 48 hrs.  
(usually 24 hrs.)*

MYRDDIN SOFTWARE, PO BOX 61, SWINDON, WILTS.  
Telephone: (0793) 40661

Please send me ..... Flight Simulator(s) by return of post for the Amstrad CPC 464

Name .....

Address .....

..... Postcode .....

Cheque enclosed for £11.95 (in. P.P.)

OR Debit my Access A/C No.:-

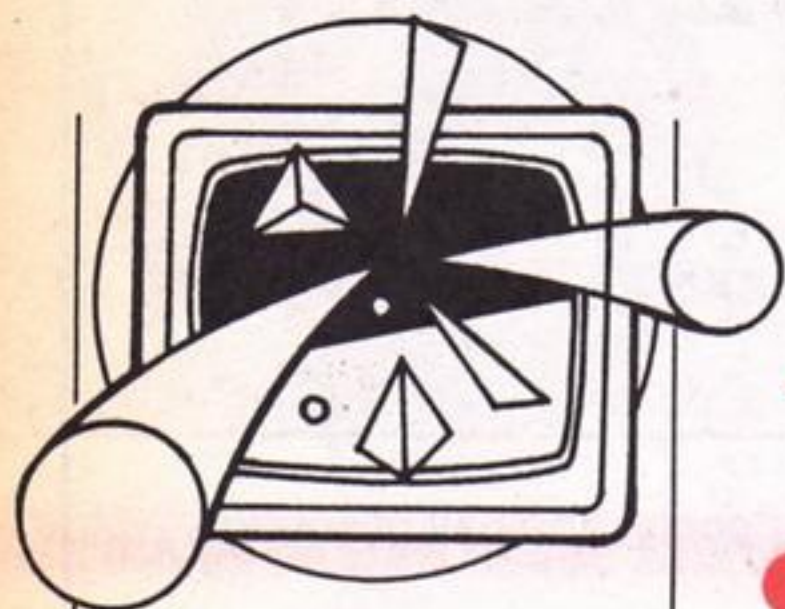
□ □ □ □    □ □ □ □    □ □ □ □    □ □ □ □

OR Telephone through your Access Order.

Signed..... HCW







# GRAPHICS

## Jon Revis looks at new products and new ideas in the world of graphics

In this article I suggest a remedy for those desperate moments when your mum or dad pull the plug on your micro, or your wife or husband give you that "Well, will you be coming to bed at the same time as me for once this week!" look. Just curl up in bed with a good book — computing of course. I have been doing just that for several nights over the past month, thumbing my way through some of the new releases.

The first book I studied was *Soft Computing, Art and Design* by Brian Reffin-Smith. The book is not a manual on programming computer graph-

ics, but rather an exploration of the role of computers in art and design. Mr Reffin-Smith attempts to pin-point new directions which could be explored by the computer artist.

One section discusses the many and varied real life applications to which computers have been put in artistic fields. As an example of one of the more straightforward ideas, the book cited the work of Theo Goldberg, who fed a single set of data into both a graphics and a music package, and then executed the two simultaneously. Now there's an idea. How about dumping a screen from a game through the sound

generator of your micro? Then again, would the results be worth all the trouble?

Although entitled *Advanced Sound and Graphics for the Dragon Computer* by Keith and Steven Brain, only 30 of the 250 pages were dedicated to sound synthesis. The highlight of the sound section is a graphic music editor which allows you to enter musical notation on the screen and then play back the finished work.

The graphics section is well written in an easy to follow style. Amongst the techniques covered are animation, graphs, charts, 3-D graphics, and — dare I mention it — machine code routines. At £5.95 it's a book no Dragon user should be without.

Graphic Art on the







Commodore 64 by Boris Allan is an attempt to explain high resolution graphics on the C64 without getting too technical. Unfortunately the layout of the programs may prove troublesome to the less experienced programmer.

As an example, in his section on turtle graphics a seven-line program calls subroutines 20000 and 21000 yet these routines are not listed until four pages later.

Having negotiated this first hurdle you may think you're home and dry. No so! The subroutine at line 20000 calls another one at line 10000 — this routine is to be found in appendix H on page 105. Even at this point you still haven't completed your "I spy subroutines" tour of the book. If you can master the layout of the programs you'll find the remainder of the text very informative.

#### Turtle graphics

Officially LOGO is considered a teaching language. It is ideal for use in teaching angles and co-ordinates. As a language it is well structured, allowing the use of procedures and Repeat/Again loops. The reason for its mention in this column is the fact that it can be used to great effect to produce complex Spirograph-type patterns. One excellent version of LOGO for the BBC is called Picture Logic from Addison Wesley. Available on both cassette and disc, it costs £36.90 in disc version.

Printed below is a short LOGO routine which should run with very little modification on most LOGO programs.

\*Set up variables

```
TIMES 5
LENGTH 50
ANGLE 144
```

\*Define procedure Polygon

```
DEFINE POLYGON
REPEAT TIMES
FORWARD LENGTH
LEFT ANGLE
AGAIN
END
```

The procedure can then be called by typing POLYGON XReturnX. By simply changing the values of ANGLE and TIMES you can create a variety of complex shapes.

#### Inverted Amstrad

Here's a quickie which allows Amstrad CPC464 programmers to highlight any text you want to input. CALL &BB9C will cause any text sent to the screen to be printed in the current PAPER colour in an INK background i.e. in inverted colours. Calling the routine again reverses this effect.

Here's an example:

```
10 CLC
20 PRINT "Enter your name"
30 PRINT
40 CALL &BB9C
50 INPUT name$
60 CALL &BB9C
70 PRINT
80 PRINT "Hello";name$
90 END
```

#### Touch Pad

If you've ever considered buying a graphics tablet for your BBC but have been deterred by size then you should take a look at the latest gadget from Cumana.

The Touch Pad is a mere 18 x 13 x 6 cm. Constructed in the shape of a wedge of cheese, it's powered by the Beeb and gives you all the facilities of a fully fledged graphics tablet — but without having to get yourself a bigger desk in order to use it.

...  
**IT'S**  
**EGGSILLERATING**





# COSMIC CHAOS



**See if you can survive in another dimension where everything is in a state of chaos.**  
**By A P Gardner**

The cruel Zacks have flung you into another dimension which is in a state of cosmic chaos. There are 28 phases in the game. In each one you are faced with a variety of different horrors, including mutant candles!

Your small, highly manoeuvrable craft has five lives and is equipped with a laser. But be careful how you use it since it is liable to overheat leaving you defenceless for a short time. Colliding with the remains of your laser blast is harmless. You complete each phase after surviving for 30 seconds.

The controls are: left arrow key — left, down arrow keys — right, up arrow key — up, P — pause, R — restart after pause.

**Variables**

- #404 horizontal position of ship
- P1S/P2S variables holding graphics characters of object to be plotted
- N% number of objects plotted during each loop
- R% controls horizontal position of object to be plotted
- W% pause during each loop
- #400 remaining time on present phase
- #401 heat of laser
- #402/5% score
- HS highest score
- NS name of high scorer
- LV% present phase
- LI% remaining lives
- X%/Y% horizontal/vertical positions for explosions
- G line number pointer for GOSUB, used when resetting variables for next phase
- V% volume for music
- MS data for music routine
- M/C counters for music routine
- C1%/C2% colour of objects/objects within firing range
- KS keyboard value
- #406 gives vertical position of object
- #405 collision with object
- Q% flag set to 1 if machine has V1.0 ROM. Used to counteract slight difference in horizontal co-ordinates between ORIC-1 and ATMOS

**How it works**

- 40 makes HIRES memory available
- 50 set HIMEM, switches off keyclick/cursor
- 60-130 the game in a series of subroutine calls
- 170-340 set up machine code starting at address #2B00
- 360-720 set up user defined characters
- 760-770 make adjustments to ROM calls from within machine code if machine uses V1.0 ROM
- 810-820 select volume level
- 830-870 select starting phase, set up data for music routine, clear screen to background black
- 910-930 set up variables
- 970 plots objects on screen
- 980-1000 call machine code, plot scores etc
- 1010-1040 test for object shot, collision with object, phase completed. If tests fail, pauses and loops back
- 1080-1100 object shot, plot

**explosion**

- 1140-1180 you're killed. Decrement lives and test for end of game
- 1220-1230 start of game over routine, set up new music data
- 1240-1270 INPUT routine for high scorer's name
- 1280-1320 print scores and wait for key press
- 1360-1460 set up screen
- 1500-1510 increment phase counter, check if game is completed
- 1520-1540 game completed routine
- 1550-1560 set up variables for next phase
- 1570-1840 data for all phases
- 1880-1930 routine to play music

**Hints on conversion**

The extensive use of machine code in the main game loop makes the program almost impossible to convert.

```

10 REM ** COSMIC CHAOS **
20 REM
30 REM BY A.P.GARDNER , JULY 1984
40 GRAB
50 HIMEM#2AFF:POKE618,10
60 GOSUB170'UDG'S & M/C
70 GOSUB810'SET LEVELS
80 GOSUB1500'LEVEL DATA
90 GOSUB910'VARIABLES
100 GOSUB1360'SCREEN
110 GOSUB970'GAME
120 GOSUB1220'END
130 GOTD70
140 :
150 REM ** UDG'S AND M/CODE **
160 :
170 FORN=#2B00TO#2C44
180 READP#:P=VAL("#"+P$)
190 POKEN,P:NEXT
200 DATADB,A0,0F,A2,1E,BD,A4,BE,9D,CC,BE,CA,D0,F7
,38,AD,06,2B,E9,28,8D,06,2B
210 DATAAD,07,2B,E9,00,8D,07,2B,38,AD,09,2B,E9,28
,8D,09,2B,AD,0A,2B,E9,00
220 DATABD,0A,2B,88,D0,D0,A9,A4,8D,06,2B,A9,BE,8D
,07,2B,8D,0A,2B,A9,CC
230 DATABD,09,2B,EA,EA,AE,04,04,AD,08,02,C9,AC,D0
,03,20,CF,2B,C9,B4,D0,03
240 DATA20,D6,2B,BE,04,04,C9,9C,D0,03,4C,E5,2B,C9
,9D,D0,03,20,DD,2B,AC,01,04
250 DATAF0,06,30,04,88,8C,01,04,AC,00,04,88,8C,00
,04,AD,02,04,69,01,8D,02,04
260 DATAAD,03,04,69,00,8D,03,04,AE,04,04,A0,03,BD
,CC,BE,20,BE,2B,88,D0,F7
270 DATACA,CA,BD,A4,BE,20,BE,2B,AE,04,04,A9,5B,9D
,CC,BE,E8,A9,5C,9D,CC,BE
280 DATAA9,5E,9D,A4,BE,E8,A9,5D,9D,CC,BE,60,C9,20
,F0,0B,C9,60,F0,07,C9,5E
290 DATAF0,03,8D,05,04,E8,60,E0,02,10,01,60,CA,60
,E0,1C,30,01,60,E8,60
300 DATAAD,08,02,C9,91,D0,F9,60,AD,01,04,C9,32,30
,03,4C,6C,2B,E8,A0,07
310 DATABD,7C,BE,C9,20,D0,17,38,AD,F3,2B,E9,28,8D
,F3,2B,AD,F4,2B,E9,00
320 DATABD,F4,2B,88,D0,E5,4C,2D,2C,98,18,69,0B,8D
,06,04,20,B5,FA,AD,02,04
330 DATA69,05,8D,02,04,AD,03,04,69,00,8D,03,04,4C
,30,2C,20,E1,FA,AD,01,04
340 DATA69,0B,8D,01,04,A9,7C,8D,F3,2B,A9,BE,8D,F4
,2B,4C,6C,2B
350 REM
360 FORP=#B400+(91*8)TOP+(34*8)+7
    
```





```

370 READU:POKEP,U:NEXTP
380 DATA1,2,5,11,22,44,48,32
390 DATA63,0,63,63,51,12,30,30
400 DATA32,16,40,52,26,13,3,1
410 DATA12,12,30,51,45,30,30,12
420 DATA63,33,33,33,33,33,33,63
430 DATA18,0,18,12,45,18,0,33
440 DATAB,4,2,63,2,4,8,0
450 DATA4,8,16,63,16,8,4,0
460 DATA3,15,63,8,8,10,26,32
470 DATA48,60,63,4,4,20,22,1
480 DATA33,36,36,26,9,5,4,3
490 DATA33,9,9,22,36,40,8,48
500 DATA3,12,48,63,59,53,46,46
510 DATA48,12,3,63,51,45,47,47
520 DATA32,46,46,63,63,48,12,3
530 DATA41,45,49,61,63,3,12,48
540 DATA0,3,25,61,59,21,9,17
550 DATA0,32,12,30,46,20,8,4
560 DATA17,25,16,16,8,5,3,4
570 DATA4,4,36,20,8,16,32,16
580 DATA0,59,42,43,43,42,58,0
590 DATA0,43,42,42,10,42,43,0
600 DATA1,1,1,1,1,1,17,15
610 DATA0,0,0,0,0,0,4,56
620 DATA14,16,16,15,15,24,20,18
630 DATA4,6,7,62,56,8,12,10
640 DATAB,8,20,20,28,8,42,62
650 DATA58,58,58,58,58,58,58,62
660 DATA32,16,8,4,6,7,7,7
670 DATA7,7,13,13,13,30,28,32
680 DATAB,8,0,20,20,0,34,34
690 DATA34,0,28,58,58,58,28,8
700 DATA12,30,55,60,63,30,12,0
710 DATA12,30,26,26,26,26,63,16
720 DATAB,15,63,30,28,63,30,0
730 :
740 REM ** ADJUST IF ORIC-1 **
750 :
760 IFPEEK(#FFFC)=#8FTHENQ%=0:RETURN
770 DOKE#2C18,#FA9B:DOKE#2C2E,#FAC7:Q%=1:RETURN
780 :
790 REM ** SELECT VOLUME **
800 :
810 CLS:PRINT:INPUT"ENTER VOLUME LEVEL (0-15)";V%
820 IFV%<0ORV%>15THENPRINT"WRONG LEVEL":GOTO810
830 CLS:PRINT:INPUT"ENTER START LEVEL (1-15)";LV%
840 IFLV%<1ORLV%>15THEN830ELSELV%=LV%-1
850 M#="4323813A13C141143238238245241143145147148
2382382"
860 M#=M#+4124314113C13A13C24113C13A13813723813A

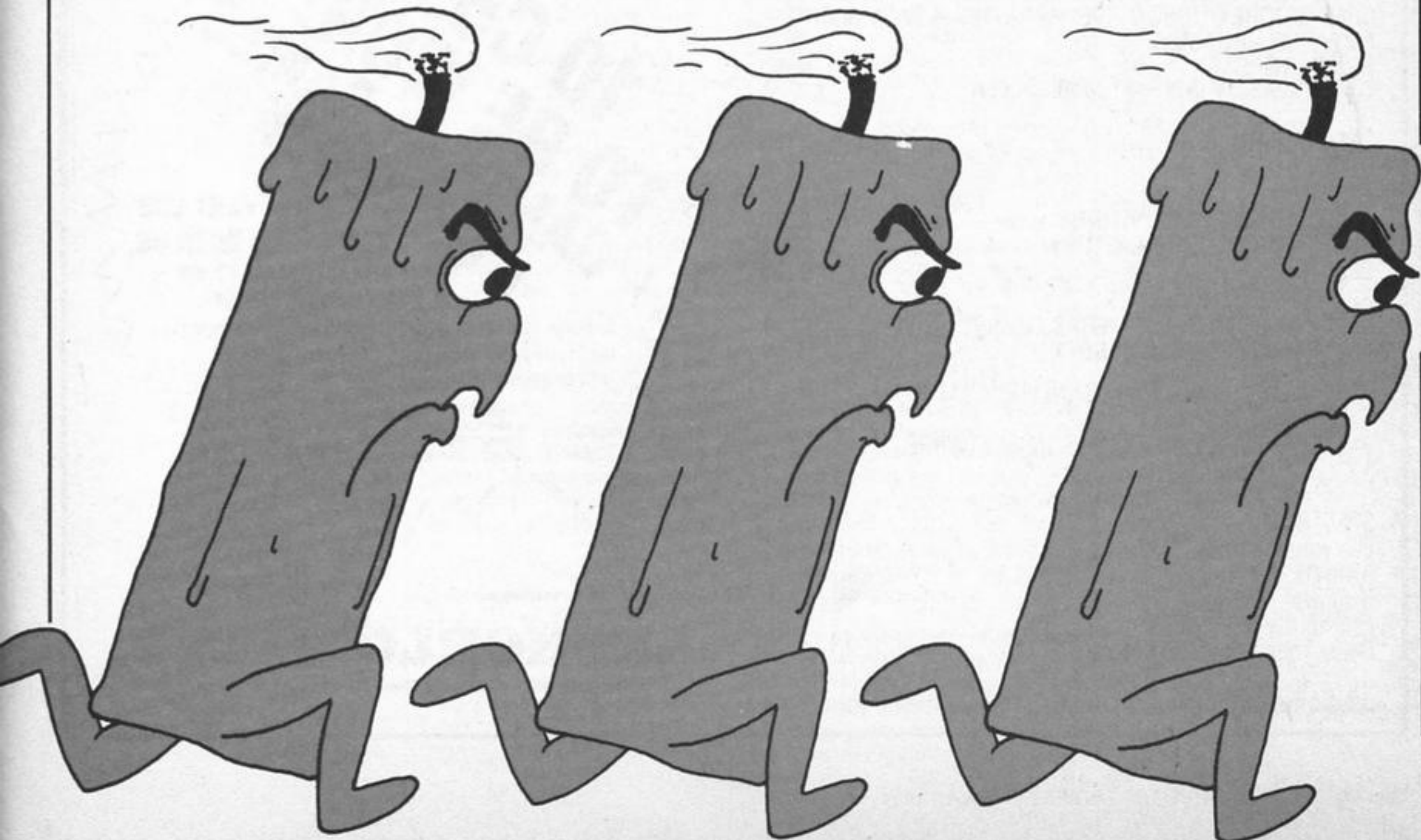
```



```

13C13813A6"
870 CLS:PAPER0:RETURN
880 :
890 REM ** VARIABLES **
900 :
910 LI%=5:DOKE#402,0:S%=0:IFH%<501THENH%=500:N#="
ORIC"
920 POKE#400,266-(W%*11):POKE#401,0:POKE#404,14:P
OKE#405,0:POKE#406,0
930 RETURN
940 :
950 REM ** GAME **
960 :
970 FORN=1TON%:R%=(RND(1)*29)+(5-Q%):PLOTX%,6,P1%
:PLOTX%,7,P2%:NEXTN
980 CALL#2B00:S%=DEEK(#402)
990 PLOT24,0,STR$(PEEK(#401))+ " "
1000 PLOT10,26,STR$(S%):IFS%>H%THENH%=S%:PLOT29,2
6,STR$(H%)
1010 IFPEEK(#405)>0THENPOKE#405,0:GOTO1140
1020 IFPEEK(#406)>0THENGOSUB1080
1030 IFPEEK(#400)=0THENGOSUB1500:WAIT200:GOTO1180
1040 WAITW%:GOTO970
1050 :
1060 REM ** OBJECT SHOT **
1070 :
1080 Y%=PEEK(#406)
1090 X%=PEEK(#404)+4-Q%:PLOTX%,Y%," "+CHR$(96)+
":PLOTX%+1,Y%-1," "
1100 PLOTX%+1,Y%+1," ":POKE#406,0:RETURN
1110 :
1120 REM ** YOU'RE KILLED **
1130 :
1140 X%=PEEK(#404)+5-Q%:Y%=20
1150 FORN=1TO14:PLOTX%,Y%,CHR$(N+32):WAIT6:NEXTN
1160 EXPLODE:GOSUB1090:WAIT200:LI%=LI%-1:IFLI%=0T
HENRETURN
1170 GOSUB1550
1180 GOSUB920:GOSUB1360:GOTO970
1190 :
1200 REM ** GAME OVER **
1210 :
1220 M#="0044124124143844524524544144124524844844
62452434004432452464464452"
1230 M#=M#+4324544144124524343843C2432418":N%=98
:GOSUB1880
1240 CLS:PAPER6:INK0:IFS%<H%THEN1280
1250 PRINT:PRINT:PRINTSPC(4)"CONGRATS. YOU HAVE A
HIGH SCORE"
1260 K#=KEY$:PRINT:PRINT"WHAT IS YOUR NAME (MAX 1
5 CHARS) ":INPUTN#

```



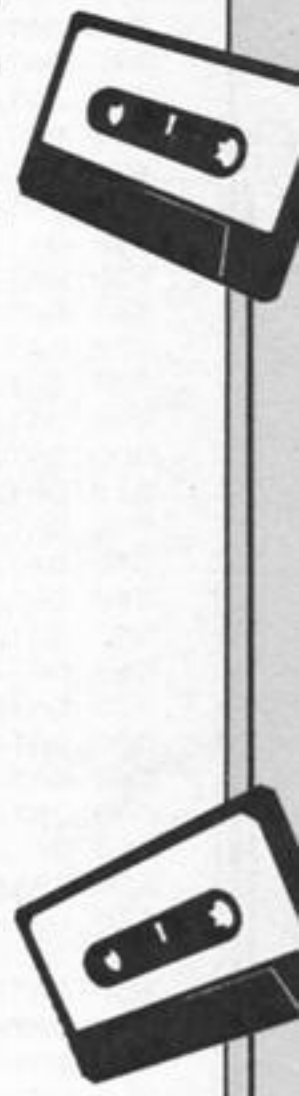


```

1270 IFLEN(N$)>15THENPRINT"TOO LONG":GOTO1260ELSE
CLS
1280 PRINT:PRINT:PRINTSPC(11)"YOU SCORED ";S%
1290 PRINT:PRINT"HI-SCORE IS"H%BY "N$
1300 PRINT:PRINT:PRINTSPC(10)"ANOTHER GO (Y/N)?"
1310 K$=KEY$:GETK$:IFK$="N"THENSTOP
1320 LV%=0:RETURN
1330 :
1340 REM ** SCREEN **
1350 :
1360 CLS:PAPER0:INK3
1370 PLOT1,0,CHR$(5)+"LIVES":PLOT7,0,STR$(LI%)
1380 PLOT12,0,CHR$(7)+"TEMPERATURE 0"
1390 PLOT29,0,CHR$(5)+"PHASE":PLOT35,0,STR$(LV%)
1400 PLOT4,26,CHR$(2)+"SCORE":PLOT10,26,STR$(S%)
1410 PLOT21,26,"HI-SCORE":PLOT29,26,STR$(H%)
1420 PLOT2-Q%,2,"
":PLOT3-Q%,12,"a"
1430 PLOT2-Q%,24,"
":PLOT36-Q%,12,"b"
1440 FORN=3TO23:PLOT2-Q%,N,"_":PLOT37-Q%,N,"_":NE
XTN
1450 FORN=6TO11:PLOT4-Q%,N,C1%:PLOT35-Q%,N,3:NEX
T
1460 FORN=12TO20:PLOT4-Q%,N,C2%:PLOT35-Q%,N,3:NEX
TN:RETURN
1470 :
1480 REM ** DATA FOR EACH PHASE **
1490 :
1500 LV%=LV%+1:P1$=" ":IFLV%>28THEN1520
1510 NZ=48:GOSUB1880:GOTO1550
1520 M$="0043C43A43840043C43A23A2384":NZ=32:GOSUB
1880
1530 CLS:PAPER5:INK0:PRINT:PRINT:PRINT" YOU MUST
EITHER BE LUCKY OR FROM"
1540 PRINTSPC(11)"ANOTHER PLANET!":PRINT:PRINT:WA
IT200:STOP
1550 G=(1560+(LV%*10)):GOSUBG
1560 C1%=(RND(1)*7)+1:C2%=(RND(1)*7)+1:IFC1%=4ORC
2%=4THEN1560ELSERETURN
    
```

```

1570 P1$=" ":P2$=" ":W%=10:N%=1:RETURN
1580 P2$="!":W%=5:N%=1:RETURN
1590 P1$="y":P2$="z":W%=10:N%=1:RETURN
1600 P1$="w":P2$="x":W%=5:N%=1:RETURN
1610 P2$="st":W%=10:N%=1:RETURN
1620 P2$="qr":W%=5:N%=1:RETURN
1630 P1$="kl":P2$="mn":W%=10:N%=1:RETURN
1640 P2$="(":W%=1:N%=1:RETURN
1650 P2$=")":W%=10:N%=2:RETURN
1660 P1$="u":P2$="v":W%=1:N%=1:RETURN
1670 P2$="op":W%=1:N%=1:RETURN
1680 P2$="!":W%=5:N%=2:RETURN
1690 P1$="gh":P2$="ij":W%=5:N%=1:RETURN
1700 P1$="y":P2$="z":W%=10:N%=2:RETURN
1710 P1$="w":P2$="x":W%=5:N%=2:RETURN
1720 P1$="cd":P2$="ef":W%=1:N%=1:RETURN
1730 P2$="st":W%=10:N%=2:RETURN
1740 P2$="qr":W%=5:N%=2:RETURN
1750 P1$="kl":P2$="mn":W%=10:N%=2:RETURN
1760 P2$="(":W%=1:N%=2:RETURN
1770 P2$=")":W%=10:N%=3:RETURN
1780 P1$="u":P2$="v":W%=1:N%=2:RETURN
1790 P2$="op":W%=1:N%=2:RETURN
1800 P2$="!":W%=5:N%=3:RETURN
1810 P1$="gh":P2$="ij":W%=5:N%=2:RETURN
1820 P1$="y":P2$="z":W%=10:N%=3:RETURN
1830 P1$="w":P2$="x":W%=5:N%=3:RETURN
1840 P1$="cd":P2$="ef":W%=1:N%=2:RETURN
1850 :
1860 REM ** MUSIC ROUTINE **
1870 :
1880 IFV%=0THENWAIT200:RETURN
1890 M=-2:C=1:FORN=1TON%:C=C-1:IFC=0THEN1910ELSEW
AIT9
1900 NEXTN:PLAY0,0,0,0:RETURN
1910 M=M+3:O=VAL("#"+MID$(M$,M,1)):P=VAL("#"+MID$(
M$,M+1,1))
1920 C=VAL("#"+MID$(M$,M+2,1)):PLAY0,0,0,0:IFD>0T
HENMUSIC1,0,P,V%:PLAY1,0,0,0
1930 WAIT8:GOTO1900
    
```



# ANCHORLORD LTD.

**COMMODORE PACK C64, DATASETTE, REFERENCE GUIDE BOOK, JOYSTICK, CARRYING CASE + INTERNATIONAL SOCCER + SIMON'S BASIC** ..... £245  
**COMMODORE PORTABLE SX 64** ..... £450  
**COMMODORE + DISC DRIVE + PRINTER + EASY SCRIPT + EASY FILE + 6 GAMES**..... £538  
**PRINTER DPS 1001**..... £300  
**SIMON'S BASIC + INTERNATIONAL SOCCER** ..... £35.50

**SPECTRUM PLUS**..... £125  
**QL** ..... £375  
**ATARI** ..... £128  
**AMSTRAD (GREEN MONITOR)**..... £238  
**AMSTRAD (COLOUR MONITOR)** ..... £338  
**ELECTRON** ..... £125  
**BBC + DFS INTERFACE**..... 399  
**MEDIC DATA SYSTEM. 1 MEGABYTE DISC DRIVE**..... £249  
**1541 FLASH FROM SUPERSOFT** ..... £89.95

ALL PRICES INCLUDE VAT

ALL BIG NAMES IN SOFTWARE

	MRP	OUR PRICE*
SPECTRUM		
Everyone's a Wally	9.95	8.95
Alien 8	9.95	8.95
Raid over Moscow	7.95	6.95
Ghostbusters	9.95	8.95
Daley Thompson Decathlon	6.90	5.90

Just a few examples of our latest stock. Phone for details

**10 C5'S TO BE WON! GAMES + GAMES!!**

**FOR EVERY £30 YOU SPEND WITH US, YOU HAVE THE CHANCE TO WIN A SINCLAIR C5!!\***

Every 100th customer drawn from our hat will win a Sinclair C5. All runners up will receive a free game!

\* Spend £150 and have 5 chances to win.  
Spend £300 and you have 10 chances to win!

Mail order only. Send cheques/POs to

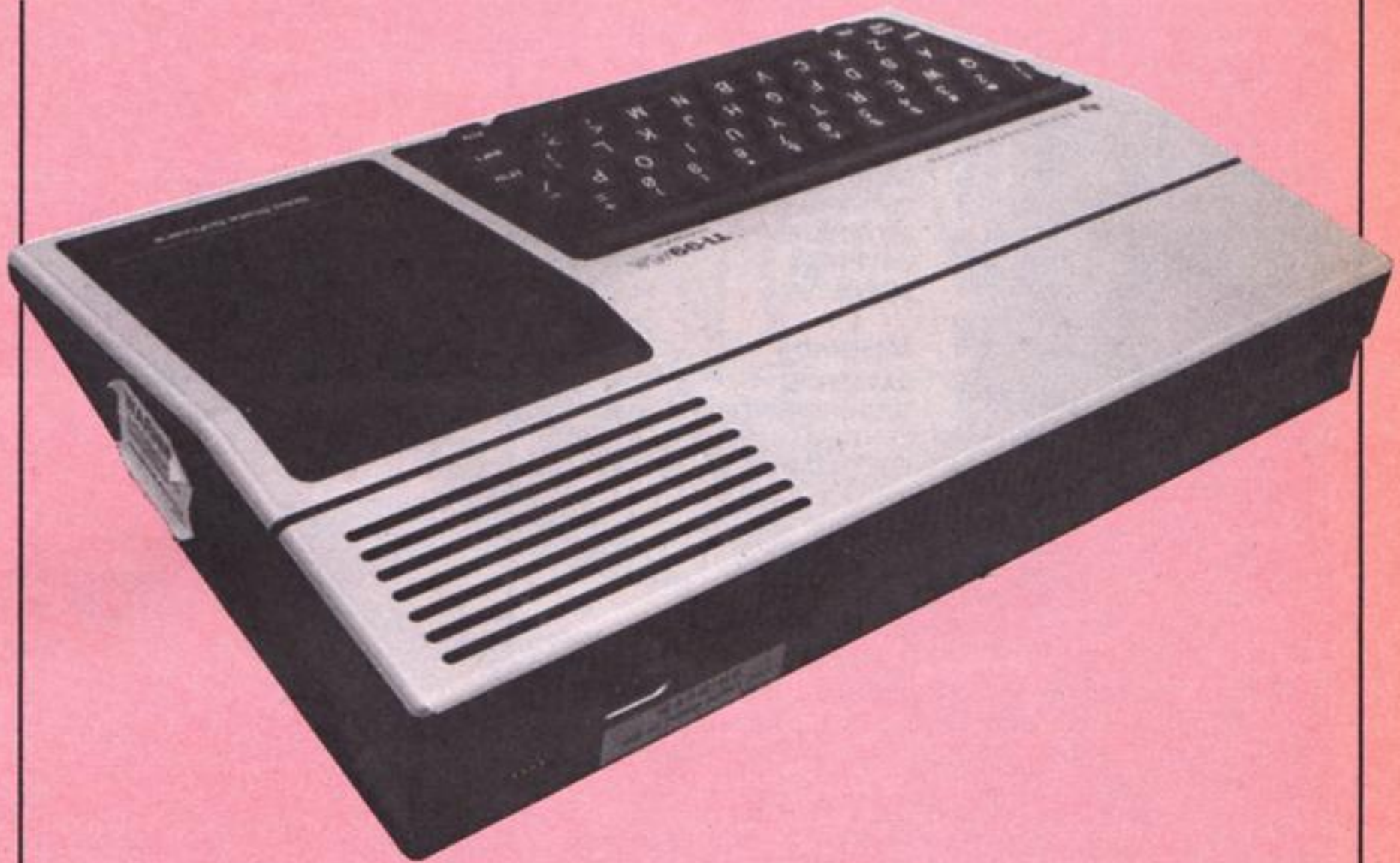
## ANCHORLORD LTD.

The International Business Centre, 29 Glasshouse Street, London W1. or telephone 01-734 6080



Joe Berry shows you how to program your Texas computer with the aid of the CTRL key. It's easy once you know how

# HOW TO PROGRAM YOUR TI



In his excellent book *Mastering the TI-99* published by Micro Press, Peter Brooks, describing quirks specific to the TI computer, writes... "if you type a line number followed by REM and then hold the CTRL key down and press a few others followed by ENTER, and then attempt to list the line, you will find a whole string of characters and TI BASIC words in the REM line."

Successfully completing this experiment on line 100, I then tried typing (line 110), with the CTRL key held down, the (invisible!) vowel letters A E I O U, not forgetting to space the letters as usual. This was a REM line as before.

After pressing ENTER and LIST the following words appeared on the screen: REM ELSE GO DEF UNBREAK RANDOMIZE. I next typed, in the same method, the letter A (line 120) ELSE appeared after entering and listing. On line 130, U, as expected, came up with RANDOMIZE. Thus it seemed I could go through the alphabet, which proved to be the case, as follows:

A=ELSE, B=::, C=!, D=IF, E=GO, F=GOTO, G=GO-SUB, H=RETURN, I=DEF, J=DIM, K=END, L=FOR, M=LET, N=BREAK, N=BREAK, O=UNBREAK, P=TRACE, Q=UNTRACE, R=INPUT, S=DATA, T=RESTORE, U=RANDOMIZE, V

=NEXT, W=READ, X=STOP, Y=DELETE, Z=REM 1=TO, 2=STEP, 3=, (comma), 4=;, 5=:, 6=), 7=(, 8=OPTION, 9=OPEN, 0=THEN.

Taking the punctuation characters one finds that the semicolon (;) is the code for that important command PRINT, =ON, +=CALL, while strangely, perhaps, the comma =02 "+(!) Other BASIC WORDS like XOR, NOT, OR etc. can be found using the FCTN key in the same way.

All this of course, must be known to many, but to me — and others I hope — it's an interesting discovery. Could these letters and characters be used as a kind of shorthand code for programming, I wondered? The REM lines seemed to make this an impossibility, but I found that when running trial lines with the Extended BASIC module, one did not have to REM for single character conversion.

If you have Extended BASIC try the following two-line trial program, remembering to hold down the CTRL key while pressing the comma, adding a space then typing in the phrase enclosed in quotes.

```
100 ; 'PRESS ENTER AND
    RUN THIS LINE'
110 ; 'NOW PRESS ENTER
    AND LIST'
```

You will find that in the

listing the semicolons are replaced by PRINT, but the lines in longer programs need not be listed until it is convenient.

Now try this longer CTRL key program:

```
100 P
110 ; 'THE CODE FOR
    'TRACE' WAS THE
    LETTER P WITH THE
    CTRL KEY DOWN'
120 ; 'THE CODE FOR
    'PRINT' IS ;'
140 ; 'THIS WILL LIST AND
    RUN'
150 R 'THIS LINE WAS
    INPUT WITH THE
    LETTER 'R'. PRESS
    ENTER':AS
160 Q
170 ;
180 ; 'NOTE THAT THE
    CODE FOR 'UNTRACE'
    (LINE 160) IS Q'
190 ; 'ALL LISTINGS ARE
    DISPLAYED CORRECT-
    LY, BUT REMEMBER
    THAT WHILE HOLDING
    THE CTRL: KEY DOWN
    THE CODE CHARACTER
    IS NOT VISIBLE!'
```

Is any of this of practical use, you may ask? I suggest that as one becomes conversant with the codes it should speed up programming, but in any case discovering as much as possible about the TI-99/4A will lead to a better understanding of the machine.



# PRICE BUSTERS

SPECTRUM	OUR RRP PRICE	CBM 64	OUR RRP PRICE
EVERYONES		IMPOSS MISSION	8.95 6.75
A WALLY	9.95 7.25	GHOSTBUSTERS	10.99 8.25
BRUCE LEE	7.95 5.95	SLAP SHOT	8.95 6.99
DRAGONTORC	7.95 5.79	SUMMER GAMES	14.95 10.25
PRJCTS FUTURE	6.95 5.25	SPY VS SPY	9.95 6.99
MOON CRESTA	6.95 5.25	POLE POSITION	9.95 7.75
WIZARDS LAIR	6.95 5.25	PAST FINDER	9.99 7.99
ALL ULTIMATE	9.95 6.95	LORDS OF MDNGHT	9.95 6.99
TECHNICIAN TED	5.95 4.50	SHOOT THE RAPIDS	7.95 6.50
AIR WULF	6.90 5.25	TIR NA NOG	9.95 7.50
SKOOL DAZE	5.95 4.50	BROADSTREET	7.99 6.50
3D STAR STRIKE	5.95 4.50	GRYPHON	7.99 6.50
ALL LEVEL 9	9.95 7.55	THE QUILL	14.95 12.25
MATCH DAY	7.95 5.70		
SAM STOAT	6.95 5.50	<b>AMSTRAD</b>	
SOFTWARE STAR	6.95 5.25	DARK STAR	7.95 6.50
BRIAN BLOODAX	7.95 5.75	TECHNICIAN TED	7.95 6.50
THE QUILL	14.95 12.25	CENTRE COURT	8.95 7.25
THE ILLUSTRATOR	14.95 12.25	THE QUILL	16.95 14.00
TASWORD II	13.90 11.50		
VALHALLA	14.95 4.99	<b>BBC</b>	
GT SPACE RACE	14.95 4.99	ELITE	14.95 12.00
SHRLCK HOLMES	14.95 9.99		

P&P inc in price in the U.K.: Europe add 75p per tape: £1.00 for tape elsewhere. Send large S.A.E. for full list (state machine) all machines catered for. When ordering send cheques/P.O. to:

**BARGAIN SOFTWARE**  
 10 MELODY COURT, WELLESLEY RD,  
 LONDON W4 3AW TEL: 01-995 2763

## HCW needs you

Have you ever looked at the articles and programs in HCW and thought you could have written that?

Why not try? We welcome submissions from readers and are always interested in your ideas and suggestions.

Submissions tend to fall into one of three categories...

**Programs** are always supplied on cassette and are accompanied by full details of the program variables. Please type these details double-spaced. Listings are helpful, but not essential. What is vital is that the programs should be completely error free, so please double check.

**Articles** on certain aspects of using home computers should be no longer than 1000 words. Try to keep to the style you see in HCW and include programming examples where they will help the reader understand the subject. We will convert your sketched illustrations into final artwork.

We also use **short tips**, articles and **brief** programming routines. Any discoveries you have made about your machine might be of interest to other readers.

All contributions are acknowledged and those accepted for publication are paid for at competitive rates. The copyright in such work will pass to Argus Specialist Publications Ltd. Keep a copy of your work and include a telephone number and an SAE. Please label everything clearly with your name and the machine concerned.

All contributions should be sent to:

Submissions  
 Home Computing Weekly  
 No.1 Golden Square London W1R 3AB

Organised by The Association of London Computer Clubs



18th, 19th & 20th APRIL 1985  
 FROM 10AM TILL 6PM

Software, Hardware, Peripherals and bits for all micros  
 Free unbiased advice from the club stands  
 Bring-and-Buy Sale on the Saturday

Plus  
 Other Features  
 Robotics Conference      Network Features  
 Community Computing

Admission Adults £2.50  
 Under 12's £1.50



COMPUTING FOR LONDON.

The Personal Computer Show  
 for Everyone

## MoveMead (Marketing) Ltd

SPECTRUM	OUR RRP PRICE	COMMODORE	OUR RRP PRICE
Potty Pigeon	6.95 5.49	Solo Flight	14.95 12.45
Pitfall II	7.95 6.95	Death Star Interceptor	9.95 6.99
Ram Turbo Interface	22.95 19.99	Bruce Lee	9.95 8.45
Match Point	7.95 4.99	Nato Commander	9.95 7.95
Gift of the Gods	9.95 7.95	Splinter Ace	9.95 7.95
Tripods	11.50 6.99	My Chew II	11.95 8.46
Boulder Dash	7.95 4.99	Battle for Midway	8.95 4.99
Alien 8	9.95 7.95	Quasmodon Rvgr	7.90 5.90
Ghostbusters	9.95 7.45	Zaxxon	9.95 7.95
Software Star	6.95 5.95	Summer Games	14.95 10.30
Technician Ted	5.95 4.75	Sherlock	14.95 12.45
Heroes of Khan	5.50 4.50	Pu Warrior	9.95 7.95
Raid over Moscow	7.95 6.95	Raid over Moscow	9.95 7.95
Bruce Lee	7.95 6.95	Staff of Karnath	9.95 6.99
Project Future	6.95 5.45	Blue Max	9.95 6.95
Everyone's a Wally	9.95 7.45	Tapper	9.95 7.50
Buggy Blast	5.95 4.46	Bravos	9.95 3.99
Daley Thompson	6.90 4.90	Spy vs Spy	9.95 7.95
Beachhead	7.95 5.90	Boulder Dash	8.95 6.45
White Lightning	14.95 9.95	Hobbit	14.95 7.99
Sherlock Holmes	14.95 9.95	D Thompson Dec	7.90 5.25
Knights Lore	9.95 7.20	Kong's Rvgr	7.90 6.50
Underworld	9.95 7.20	Fighter Pilot	9.95 7.50
Lords of Midnight	9.95 7.95	Break lever	7.00 5.49
Doomdark's Revenge	9.95 5.95	Combat Lynx	8.95 5.95
Pyron	7.95 5.90	White Lightning	19.95 14.95
Frank N Stein	5.95 4.45	Soldierman	9.95 7.95
T.L.I.	5.95 4.45	Lord Cam Warrior	9.95 7.50
Trashman	5.95 4.45	F15 Strike Eagle	14.95 12.45
S. Davis Snooker	7.95 5.49	Flop & Flop	9.95 3.99
Monty Mole	6.95 5.45	Suicide Strike	8.95 6.95
Full Throttle	8.95 5.45	Spy Hunter	9.95 7.50
Valhalla	14.95 3.99	Impossible Mission	8.95 7.45
Avalon	7.95 5.95	Castle of Terror	9.95 7.50
Enduro	7.95 5.95	Astro Chase	9.95 3.99
Blockbusters	7.95 6.75	Shoot the Rapids	7.95 6.50
Combat Lynx	7.95 4.95	Lords of Midnight	9.95 7.50
Dark Star	7.95 5.49	Congo Bongo	9.95 7.95
Jet Set Willy	5.95 4.46	Battle for Normandy	14.95 12.45
Star Strike	5.95 4.46	Combat Leader	14.95 12.45
Travel with Trashman	5.95 4.50	Cassette 50	9.95 5.95
Backpackers Guide to	7.50 6.10	Kong Strikes Back	7.90 5.45
Quasmodon Rev	6.90 5.50	Up and Down	9.95 7.95
Tir Na Nog	9.95 6.95		
Airwolf	6.90 5.45		
Match Day	7.95 5.45		
Pyramarama	6.95 5.49		
Blue Max	7.95 5.90		
Machine Lightning	19.95 14.95		
Monty's Innocent	6.95 4.99		
Zaxxon	7.95 5.99		
Great Space Race	14.95 3.99		

All prices inc VAT, postage & packing is free on orders in excess of £15.00. All orders of less than this amount are charged 0.75 towards the costs. Orders despatched within 3 days of receipt of your order and cheque & P.O.

Send your cheque/P.O. to

**MOVEMEAD (MARKETING) LTD**  
 55 AYLESBURY STREET  
 BLETCHLEY, BUCKS MK2 2BH  
 TEL: (0908) 79232/3

Access orders welcome

All tapes are offered subject to availability. E&OE.



BBC PROGRAM

# THE BELLS, THE BELLS!



**In this program  
by Stephen Gray  
you must save  
Esmeralda, but  
you mustn't  
stop ringing  
those bells**

In this game for the BBC you play the part of Quasimodo who is again attempting to rescue Esmeralda.

You must cross 10 walls and ring the bell at the end of each one. There are arrows, rocks and holes in the wall that hinder your journey, but Esmeralda must be saved, so persevere.

You should use z — left, x — right, RETURN — jump.

**Variables**

- X% Quasimodo's x co-ordinate
- Y% Quasimodo's y co-ordinate
- M% Quasimodo's leg setting
- J% direction Quasimodo is facing
- MX% Quasimodo's last x co-ordinate
- MY% Quasimodo's last y co-ordinate
- R% should rock procedure be called
- S% score
- L% wall
- RX% rock x
- SX% rock's last x
- F% Quasimodo fallen off wall
- JUMP% Quasimodo is jumping
- N% has Quasimodo moved
- Q% lives
- B% bonus
- AR% should arrow procedure be called
- AX% arrow x
- DX% arrow last x
- QS,HS,IS,JS all print Quasimodo
- BS black block to cover Quasimodo
- CS bell
- AS arrow

- WS brick
- RS rock
- ES Esmeralda
- NS (5) hi-score names
- H% (5) hi-scores

**How it works**

- 80-170 initialisation
- 180-280 main loop
- 290-500 Quasimodo procedure
- 510-580 rock procedure
- 590-660 arrow procedure
- 670-800 print screen procedure
- 810-1030 initialisation procedure
- 1040-1250 fall procedure
- 1260-1310 level cleared procedure
- 1320-1380 print Esmeralda procedure
- 1390-1530 Esmeralda rescued procedure
- 1540-1670 print hi-scores procedure
- 1680-1880 new hi-score procedure
- 1890-1930 dead, new game procedure
- 1940-1990 new game tune
- 2000-2040 wedding tune
- 2050-2200 more falls procedure

```
10 REM *****
20 REM * QUASIMODO *
30 REM * By Stephen Gray *
40 REM * for H.C.W. *
```



```

50 REM * BBC model B *
60 REM * Grayface *
70 REM *****
80 *TV 255
90 MODE7
100 PROCINIT
110 S%=0:L%=1:Q%=3
120 MODE2
130 VDU5
140 B%=300
150 IF Q%=0 GOTO 1890
160 PROCSCR
170 TIME=0
180 PROCQ
190 IF F% PROCDFALL:GOTO140
200 IF R%=0 R%=1:RX%=1088
210 IF R%=1 PROCR
220 IF L%>4 AND AR%=0 AND B%<280 AR%=1:AX%=-64
230 IF AR%=1 PROCARROW
240 IF POINT(X%+65,Y%)=6 PROCBELL:GOTO140
250 IF F% PROCDFALL:GOTO140
260 B%=300-TIME DIV10:VDU4:COLOUR7:PRINTTAB(17,1
);B%:" ":VDU5
270 IF B%<0 F%=1
280 GOTO 180
290 DEFPROCQ
300 MX%=X%:MY%=Y%
310 IF INKEY(-98) AND X%>0 X%=X%-32:J%=2:N%=1
320 IF INKEY(-67) X%=X%+32:J%=1:N%=1
330 IF JUMP%>0 N%=1
340 IF INKEY(-74) AND JUMP%=0 JUMP%=5:SOUND1,1,5
6,10
350 IF N%=0 ENDPROC
360 IF JUMP%>1 Y%=576 ELSE Y%=512
370 IF (RX%=X% OR RX%=X%+32 OR RX%=X%-32) AND Y%
=512 F%=1
380 IF L%>4 AND (AX%=X% OR AX%=X%-32 OR AX%=X%+3
2) AND Y%=512 F%=1
390 IF JUMP%<2 SOUND 1,7,40+M%*8,1
400 IF M%=1 M%=2 ELSE M%=1
410 IF JUMP%>0 JUMP%=JUMP%-1
420 MOVE MX%,MY%:PRINTB#
430 IF Y%=512 AND POINT(X%,Y%-64)=0 AND POINT(X%
+65,Y%-64)=0 F%=1
440 ON J% GOTO 450,480
450 MOVE X%,Y%:IF M%=1 PRINTQ# ELSE PRINTH#
460 N%=0
470 ENDPROC
480 MOVE X%,Y%:IF M%=1 PRINTI# ELSE PRINTJ#
490 N%=0
500 ENDPROC
510 DEFPROCR
520 SX%=RX%
530 RX%=RX%-64
540 MOVE SX%,512:VDU18,0,0,255
550 MOVE RX%,512:PRINTR#
560 IF RX%<-32 R%=0
570 IF (RX%=X% OR RX%=X%+32 OR RX%=X%-32) AND Y%
=512 F%=1
580 ENDPROC
590 DEFPROCARROW
600 DX%=AX%
610 AX%=AX%+128
620 MOVE DX%,480:VDU18,0,0,255,255
630 MOVE AX%,480:PRINTA#
640 IF AX%>1087 AR%=0:MOVE AX%,480:VDU18,0,0,255
,255
650 IF (AX%=X% OR AX%=X%-32 OR AX%=X%+32) AND Y%
=512 F%=1
660 ENDPROC
670 DEFPROCSCR
680 VDU23;8202;0;0;0;
690 CLS
700 IF S%=0 AND Q%=3 PROCTUNE
710 MOVE 0,448:FOR A=1 TO 260:PRINTW#;:NEXT
720 GCOLOR,0
730 IF L% MOD5>1 MOVE0,448:FOR A=1 TO 4:VDU9,9,2
55,255,8,8,10,255,255,11:NEXT
740 GCOLOR,6:MOVE 1152,480:DRAW 1152,900:MOVE1088
,960:PRINTC#
750 IF L%=10 PROCES
760 X%=0:Y%=512:AR%=0:M%=1:J%=1:R%=0:F%=0:JUMP%=
0:N%=0:RX%=1088:AX%=-64
770 VDU4:COLOUR6:PRINTTAB(0,0);"SCORE WALL B
DNUS":COLOUR 7:PRINTTAB(0,1);S%;TAB(9,1);L%:VDU5:M
OVE 0,927:PRINT;STRING$(Q%-1,(H#+CHR#11+CHR#9))
780 VDU5

```



```

790 MOVE X%,Y%:PRINTQ#
800 ENDPROC
810 DEF PROCINIT
820 DIM N$(5),H$(5):FORA=1 TO 5:H%(A)=100:N$(A)=
"Grayface":NEXT
830 VDU 23,254,127,127,127,127,127,127,127,0
840 VDU 23,253,128,128,128,128,128,128,128,255
850 VDU23,255,255,255,255,255,255,255,255,255
860 VDU23,224,14,28,31,14,6,0,0,0,23,225,0,93,22
4,240,248,252,255,124,23,226,127,127,99,99,99,96,9
6,96,23,227,124,124,108,108,236,236,12,12
870 VDU23,228,112,56,248,112,96,0,0,0,23,229,0,7
0,7,15,31,63,255,62,23,230,254,254,198,198,198,6,6
,6,23,231,62,62,54,54,55,55,48,48,23,232,0,60,110,
223,223,126,60,0
880 VDU23,233,1,3,6,5,13,11,11,15,23,234,128,192
,224,224,240,240,240,240,23,235,7,7,15,15,15,31,63
,127,23,236,224,224,240,240,240,248,252,254,23,237
,0,0,1,2,2,4,4,0
890 VDU23,238,0,168,84,255,84,168,0,0,23,239,0,8
,12,255,12,8,0,0
900 A#=CHR#18+CHR#0+CHR#3+CHR#238+CHR#239
910 C#=CHR#18+CHR#0+CHR#3+CHR#233+CHR#234+CHR#8+
CHR#8+CHR#10+CHR#235+CHR#236+CHR#8+CHR#8+CHR#11+CH
R#18+CHR#0+CHR#7+CHR#237
920 W#=CHR#18+CHR#0+CHR#1+CHR#254+CHR#8+CHR#18+C
HR#0+CHR#3+CHR#253
930 Q#=CHR#18+CHR#0+CHR#5+CHR#224+CHR#8+CHR#18+C
HR#0+CHR#4+CHR#225+CHR#18+CHR#0+CHR#2+CHR#8+CHR#10
+CHR#226
940 I#=CHR#18+CHR#0+CHR#5+CHR#228+CHR#8+CHR#18+C
HR#0+CHR#4+CHR#229+CHR#18+CHR#0+CHR#2+CHR#8+CHR#10
+CHR#230
950 H#=CHR#18+CHR#0+CHR#5+CHR#224+CHR#8+CHR#18+C
HR#0+CHR#4+CHR#225+CHR#18+CHR#0+CHR#2+CHR#8+CHR#10
+CHR#227
960 J#=CHR#18+CHR#0+CHR#5+CHR#228+CHR#8+CHR#18+C
HR#0+CHR#4+CHR#229+CHR#18+CHR#0+CHR#2+CHR#8+CHR#10
+CHR#231
970 B#=CHR#18+CHR#0+CHR#0+CHR#255+CHR#8+CHR#10+C
HR#255
980 R#=CHR#18+CHR#0+CHR#7+CHR#232
990 ENVELOPE 1,129,-2,-2,-2,1,1,1,120,-1,-1,-1,1
20,90
1000 ENVELOPE 7,129,-1,-1,-1,10,10,10,120,-1,-1,-
1,120,90
1010 ENVELOPE 6,1,0,0,0,1,1,1,120,-1,-1,-1,120,60
1020 PROCSHOW
1030 ENDPROC
1040 DEFPROCDFALL
1050 IF POINT(X%,Y%-64)=0 AND POINT(X%+32,Y%-64)<
>0 F%=2
1060 IF POINT(X%,Y%-64)<>0 AND POINT(X%+32,Y%-64)
=0 F%=3
1070 REPEAT
1080 MOVE X%,Y%:PRINTB#
1090 Y%=Y%-32
1100 SOUND 2,7,Y%/3,2
1110 MOVE X%,Y%:PRINTQ#
1120 FORB=1 TO 100:NEXT
1130 UNTIL POINT(X%,Y%-32)=1 OR POINT(X%,Y%-32)=3
OR POINT(X%+64,Y%-32)=1
1140 IF F%=2 PROCDFALL2:GOTO1170
1150 IF F%=3 PROCDFALL1:GOTO1170
1160 IF X% MOD64=0 MOVE X%,Y%:VDU18,0,0,255,8,10:
PRINTW# ELSE MOVE X%-32,Y%:VDU18,0,0,255,255,8,8,1
0:PRINTW#;W#
1170 REPEAT
1180 Y%=Y%-32
1190 SOUND 2,7,Y%/3,2
1200 MOVE X%,Y%:PRINTQ#
1210 FORB=1 TO 100:NEXT
1220 IF X% MOD64=0 MOVE X%,Y%:PRINT W# ELSE MOVE
X%-32,Y%:PRINTW#;W#
1230 UNTIL Y%=96
1240 IF X% MOD64=0 MOVE X%,Y%-32:PRINT W# ELSE MO
VE X%-32,Y%-32:PRINTW#;W#
1250 Q%=Q%-1:ENDPROC
1260 DEFPROCDBELL
1270 *FX15
1280 SOUND1,1,100,50
1290 L%=L%+1:IF L%=11 PROCESY ELSE FOR A=1 TO 30
00:NEXT
1300 S%=S%+B%
1310 ENDPROC
1320 DEFPROCES
1330 MOVE960,832:PRINTW#;W#;CHR#9;CHR#9;W#

```





```

1340 VDU23,232,30,62,124,112,224,224,224,192,23,2
33,0,0,0,4,0,16,24,60,23,235,124,120,0,0,0,0,72,10
8,23,234,0,0,0,8,30,12,0,0,23,236,0,0,120,120,252,
252,0,0
1350 E#=CHR#18+CHR#0+CHR#3+CHR#232+CHR#8+CHR#18+C
HR#0+CHR#5+CHR#234+CHR#8+CHR#18+CHR#0+CHR#6+CHR#23
3+CHR#8+CHR#10+CHR#235+CHR#8+CHR#18+CHR#0+CHR#2+CH
R#236
1360 MOVE1024,896:PRINTE#
1370 VDU23,232,0,60,110,223,223,126,60,0,23,233,1
,3,6,5,13,11,11,15,23,234,128,192,224,224,240,240,
240,240,23,235,7,7,15,15,15,31,63,127,23,236,224,2
24,240,240,240,248,252,254
1380 ENDPROC
1390 DEFPROCESSY
1400 FOR B=1 TO 200:NEXT
1410 MOVE X%,Y%:PRINTB#
1420 MOVE X%+64,512:PRINTB#
1430 X%=X%+32
1440 REPEAT
1450 MOVE X%,Y%:PRINTB#
1460 Y%=Y%+32
1470 FOR B=1 TO 200:NEXT
1480 MOVE X%,Y%:PRINTJ#
1490 UNTIL Y%=896
1500 PROCSONG
1510 FOR B=1 TO 10000:NEXT
1520 L%=1
1530 ENDPROC
1540 DEFPROCSHOW
1550 CLS
1560 PRINTCHR#131;CHR#157;"
1570 PRINTCHR#131;CHR#157;CHR#141;CHR#129;"
QUASIMODO"
1580 PRINTCHR#131;CHR#157;CHR#141;CHR#129;"
QUASIMODO"
1590 PRINTCHR#131;CHR#157;"
1600 PRINTCHR#131;CHR#157;CHR#132;"          By St
ephen Gray"
1610 FOR A=1 TO 5:PRINT';CHR#141;;A;"",H%(A);"
";N%(A)
1620 PRINT;CHR#141;;A;"",H%(A);"          ";N%(A)
1630 NEXT
1640 PRINTTAB(6,22);CHR#134;"Press RETURN to sta
rt"
1650 *FX15
1660 A=GET:IF A<>13 GOTO 1660
1670 ENDPROC
1680 DEFPROCHI
1690 V%=0
1700 IF S%<H%(5) ENDPROC
1710 V%=V%+1
1720 IF S%<H%(V%) GOTO 1710
1730 IF V%=5 GOTO 1770
1740 FOR N=5 TO V% STEP-1
1750 H%(N)=H%(N-1):N%(N)=N%(N-1)
1760 NEXT
    
```



```

1770 PRINT""YOU'RE IN THE TOP FIVE"
1780 H%(V%)=S%
1790 PRINT""ENTER YOUR NAME"
1800 N%(V%)=""
1810 *FX15,1
1820 A=GET
1830 IF A=13 ENDPROC
1840 IF A=127 AND LENN%(V%)>0 N%(V%)=LEFT$(N%(V%)
,LENN%(V%)-1):VDUA:GOTO1820
1850 IF (A=127 AND LENN%(V%)=0) OR LENN%(V%)=15 VD
U7:GOTO1820
1860 N%(V%)=N%(V%)+CHR$(A):PRINT;CHR$(A);
1870 GOTO1820
1880 ENDPROC
1890 FOR B=1 TO 10000:NEXT
1900 MODE7
1910 PROCHI
1920 PROCSHOW
1930 GOTO 110
1940 DEFPROCTUNE
1950 RESTORE 1980
1960 FORG=1 TO14
1970 READ F,H:SOUND 1,6,F,H:NEXT
1980 DATA 25,12,21,12,5,8,25,12,21,12,5,8,13,4,13
,4,13,4,13,4,13,4,13,4,21,4,25,20
1990 ENDPROC
2000 DEFPROCSONG
2010 RESTORE 2030
2020 FOR G=1 TO19:READ F,H:SOUND 1,6,F,H:NEXT
2030 DATA 33,6,53,4,53,2,53,12,33,6,61,4,49,2,53,
12,33,6,53,4,73,2,73,6,69,4,61,2,53,6,49,4,53,2,61
,6,33,6
2040 ENDPROC
2050 DEFPROCFALL1
2060 MOVE X%,Y%:PRINTB#
2070 Y%=Y%-32:MOVE X%,Y%:PRINTQ#:SOUND2,7,Y%/3,2:
FOR B=1 TO 100:NEXT
2080 MOVE X%,Y%:VDU18,0,0,255:MOVE X%-32,Y%:PRINT
W#;:VDU18,0,0,255
2090 Y%=Y%-32
2100 MOVE X%,Y%:PRINTQ#:SOUND2,7,Y%/3,2:FOR B=1 T
O 100:NEXT
2110 MOVE X%-32,Y%:PRINTW#;:VDU18,0,0,255,8,8,10:
PRINTW#;:VDU18,0,0,255
2120 ENDPROC
2130 DEFPROCFALL2
2140 MOVE X%,Y%:PRINTB#
2150 Y%=Y%-32:MOVE X%,Y%:PRINTQ#:SOUND2,7,Y%/3,2:
FOR B=1 TO 100:NEXT
2160 MOVE X%,Y%:VDU18,0,0,255:MOVE X%-32,Y%:VDU18
,0,0,255:PRINTW#
2170 Y%=Y%-32
2180 MOVE X%,Y%:PRINTQ#:SOUND2,7,Y%/3,2:FOR B=1 T
O 100:NEXT
2190 MOVE X%-32,Y%:VDU18,0,0,255:PRINTW#;:VDU18,8,
10,18,0,0,255:PRINTW#
2200 ENDPROC
    
```



... **IT'S EGG SITTING!**

**CHOCOCCY EGG**

**IT'S FOR THE 48K SPECTRUM**

It's available from April the 2nd  
 It's only £6.90 inc. V.A.T.  
 It's got over 100 screens  
 It's available from all good computer stores  
 It's also available direct from A n F Software  
 It's eggxactly what you've been waiting for



**A&F SOFTWARE·UNIT 8 CANAL SIDE INDUSTRIAL EST,  
 WOODBINE ST EAST, ROCHDALE, LANCs O4165LB Tel:(0706) 341111**



AMSTRAD CPC464 PROGRAM

# RETURN TO ZARKON

**You may have played David Pope's Mission to Zarkon — well, this is a follow-up. It's an independent adventure and should keep you occupied for hours**



Returning from a mission on the planet Zarkon, you are contacted by the rebel forces and asked to return to the planet to find a traitor and eliminate him.

You run out of fuel before you reach the city of Zargos, where you must make contact, or be contacted by the rebels. You have 200 moves before the Zarkonian troops catch you.

There are two locations: the city of Zargos and the island of Zarg. The city and island have 90 sub-locations and 25 items between them.

### Variables

m%(x,y) holds map  
 f% holds locations  
 d\$(x) describes locations  
 h%(x,1) pointer to items  
 i\$(x) describes items  
 w\$(x) holds inventory  
 v\$ player input  
 z\$ words understood  
 r\$,s\$,t\$ substrings  
 aa%-az%  
 j%,l%,c%  
 u%,ff%,qa%  
 xy%,sr%,st%  
 A number of moves

flags

```

10 REM***RETURN TO ZARKON*****
20
30 REM***BY DAVID JOHN POPE*****
40
50 REM***SET COLOURS*****
60 MODE 1:BORDER 5:INK 0,0:INK 1,24:INK 2,3:INK 3,
26
70 PAPER 0
80 REM ***INITIALISE GAME*****
90 DIM m%(90,4),d$(90),i$(30),w$(5),h%(30,1),z$(30
),z%(30)
100 f%=79:xy%=0:aa%=0:ab%=0:ac%=0:ad%=0:ae%=0:af%=
0:ag%=0:ah%=0:ai%=0:aj%=0:ak%=0:al%=0:am%=0:an%=0:
ao%=0:ap%=0:aq%=0:ar%=0:as%=0:at%=0:au%=0:av%=0:aw
%=0:ax%=0:ay%=0:az%=0:ans%=0
110 REM ***OPENING TITLES*****
120 GOSUB 3460
130 FOR x=1 TO 90:READ d$(x)
140 FOR y=1 TO 4:READ m%(x,y):NEXT y,x
150 FOR x=1 TO 25:READ i$(x),h%(x,1),z$(x):z%(x)=x
:NEXT
160 LOCATE 7,24:PAPER 2:PEN 1:PRINT"PRESS THE <SPA
CE BAR> TO START":PAPER 0:PEN 0
170 a$=INKEY$:IF a$<>" " THEN 170
180 CLS:WHILE az%<>10
190 REM ***MAIN LOOP STARTS HERE****
200 REM ***SET TRAPS*****
210 IF (f%=18 OR f%=20 OR f%=24) AND an%=1 THEN GO
TO 370
220 IF f%=45 THEN qa%=qa%+1:IF f%=45 AND qa%=3 THE
N i$(25)="SIX WRITHING TENTACLES!!!!"
230 IF f%=45 AND qa%=5 THEN i$(25)="TEN WRITHING T
ENTACLES!!!!":PRINT "I WOULDN'T COME BACK HERE IF
I WERE YOU!"
240 IF f%=45 AND qa%=6 THEN GOTO 270
250 IF f%=12 AND ac%=0 THEN GOTO 310
260 GOTO 460
270 GOSUB 280:PRINT"YOU ARE CORDIALLY INVITED TO A
PICNIC ON THE BEACH.....
YOU ARE ON THE MENU!!!":GOTO 3970
280 IF f%=12 THEN q%=-75 ELSE IF f%=37 THEN q%=-50
ELSE IF f%=45 THEN q%=1000 ELSE IF (f%=79 OR f%=7
4) THEN q%=-25 ELSE IF f%=68 THEN q%=2000 ELSE IF
f%=40 THEN q%=-75 ELSE IF f%=45 THEN q%=500
290 INK 0,24,6:CLS:FOR X=1 TO 20:BORDER 26,X:ENT 1
,200,4,10:SOUND 1,q%+100,50,15,1,1:NEXT:BORDER 5:I
NK 0,0:CLS:RETURN
300 GOSUB 280:PRINT"THE SPLASHING ATTRACTS SOME SH
ARKS.....SOMETHING TICKLES YOUR LEG.....
IT TINGLES.....OR WHAT'S
LEFT OF IT DOES!!!!":GOTO 3970
310 GOSUB 280:PRINT"YOU HAVE NO I.D. CARD!! AMERIC
AN EXPRESSWON'T DO ANYTHING FOR YOU HERE!!!":BORDER
5:GOTO 3970
320 GOSUB 280:PRINT"YOU ARE IMMEDIATELY ARRESTED .
.....THE CHARGE IS MURDER!
THEY SAY THE SPICE MINES OF ARKESIA ARE VERY NICE!
LET'S HOPE SO.....YOU'LL BE THERE FOR
SOME TIME!!!!!!!!!!!!":GOTO 3970
330 GOSUB 280:PRINT"IT COMES AWAY VERY EASILY.....
.....AS DO THE OTHERS.....
THINGS BEGIN TO GET ON TOP OF YOU!!!!!!!!!!!!":GOTO 397
0
340 GOSUB 280:PRINT"NOBODY SAID IT WAS DEAD!!!!
ZILOVIAN CRABS LIKE THEIR NAP AND WHEN
WOKEN UP THEY TEND TO NIP...AND NIP.....YOU REALLY
FEEL CUT UP ABOUT THIS.....IN FACT YOU GO TO PI
ECES..LITTLE PIECES!":GOTO 3970
350 GOSUB 280:PRINT"AS YOU JUMP THROUGH THE AIR YO
U WONDER WHY YOU ARE NOT REACHING THE OTHER SIDE!
OH DEAR! Y
OU SEEM TO BE SINKING!!!!!!!!!!!!":GOTO 3970
360 GOSUB 280:PRINT"AS SOON AS YOU GO IN YOU REALI
SE THAT...SOMETHING IS NOT QUITE RIGHT.....
COULD IT BE THAT THE THE TEMPERATURE IS OVER 600 C
ENTIGRADE WHICH IS.....THE AVERAGE TEMPERAT
URE ON PHENALIA!!!!":GOTO 3970
370 GOSUB 280:PRINT"SEVERAL FEDERATION TROOPERS AR
REST YOU WITH THE NOTE IN YOUR HANDS! YOUR TRIAL
IS QUITE BRIEF.....THEY SHOOT
YOU ON THE SPOT!":BORDER 5:GOTO 3970
380 CLS:BORDER 9,0:FOR x=1 TO 10:ENT 1,200,30,10:S
OUND 1,2000,100,15,1,1:NEXT:PRINT"WOW..WHAT A NIGH
T YOU HAD!!"
390 h%(15,1)=38:f%=36:BORDER 5:RETURN
400 CLS:BORDER 3,1:PRINT"HE IS DEAD!!NOW YOU MUST
RETURN TO YOUR PLANET TO GIVE THEM THE NEWS SO THE
Y CANCONTINUE TO HELP THE REBELS!!!!!!!!!!!!":FOR
    
```





```

x=1 TO 15
410 ENT 1,20,8,8:SOUND 1,200,100,15,1,1:NEXT:CLS:B
ORDER 5:xy%=1
420 d$(73)="IN A SECRET CAVE.THERE IS A DEAD BODY
ON THE FLOOR"
430 d$(68)="OUTSIDE A SECRET CAVE!!!!"
440 d$(78)="ON THE OTHER SIDE OF THE QUICKSAND"
450 d$(84)="ON A NARROW PATH. YOUR WAY IS BLOCKED
BYA SMALL POOL OF QUICKSAND":RETURN
460 REM ***CALCULATE DIRECTION*****
470 PAPER 2:PEN 1:PRINT"YOU ARE:-":PAPER 1:PEN 0:P
RINT d$(f%)
480 a$="":IF m%(f%,1)>0 THEN a$="WEST"
490 IF m%(f%,2)>0 AND LEN(a$)>0 THEN a$=a$+",NORTH
" ELSE IF m%(f%,2)>0 THEN a$="NORTH"
500 IF m%(f%,3)>0 AND LEN(a$)>0 THEN a$=a$+",SOUTH
" ELSE IF m%(f%,3)>0 THEN a$="SOUTH"
510 IF m%(f%,4)>0 AND LEN(a$)>0 THEN a$=a$+",EAST"
ELSE IF m%(f%,4)>0 THEN a$="EAST"
520 IF LEN(a$)=0 THEN a$="THINK ABOUT IT !!"
530 IF f%=90 THEN a$="...ER..UMM...ER..MMM..ERR...
."
540 IF f%=49 THEN a$="D O W N!!! ARRGH!!!!!"
550 PRINT:PAPER 2:PEN 1:PRINT"YOU CAN GO:-":PAPER
1:PEN 0:PRINT a$
560 REM ***LOOK FOR OBJECTS*****
570 u=0:FOR x=1 TO 25:ff%=0:IF h%(x,1)=f% THEN ff%
=1
580 IF ff%=1 THEN 600
590 NEXT x:GOTO 620
600 IF u=0 THEN PAPER 2 :PEN 1:PRINT:PRINT"YOU CAN
SEE:-":PAPER 1:PEN 0
610 PRINT i$(x):u=u+1:GOTO 590
620 PRINT:PRINT:PAPER 2:PEN 3:IF f%=90 OR f%=49 TH
EN GOTO 3970 ELSE PRINT"YOU HAVE";200-A;"MOVES LEF
T":PAPER 0:PEN 1
630 IF f%=90 GOTO 3970
640 A=A+1
650 IF A=200 THEN GOTO 320
660 PRINT:PAPER 2:PEN 3:PRINT"WHAT WILL YOU DO NOW
?":PRINT:PRINT:INPUT v$:PAPER 0:PEN 1
670 IF A<1 THEN GOTO 320
680 CLS
690 v$=LOWER$(v$):r$=LEFT$(v$,2):s$=LEFT$(v$,3):t$
=LEFT$(v$,4):c=FRE("")
700 REM ***PLAYER INPUT*****
710 j%=0:IF (r$="w" OR t$="go w") AND m%(f%,1)>0 T
HEN f%=m%(f%,1):j%=1
720 IF (r$="n" OR t$="go n") AND m%(f%,2)>0 THEN f
%=m%(f%,2):j%=1
730 IF (r$="s" OR t$="go s") AND m%(f%,3)>0 THEN f
%=m%(f%,3):j%=1
740 IF (r$="e" OR t$="go e") AND m%(f%,4)>0 THEN f
%=m%(f%,4):j%=1
750 IF j%=0 AND (r$="w" OR t$="go w" OR r$="n" OR
t$="go n" OR r$="s" OR t$="go s" OR r$="e" OR t$="
go e") THEN j%=1:PRINT"YOU CAN'T GO THAT WAY !"
760 IF s$="get" OR s$="gra" OR s$="tak" THEN j%=1:
GOSUB 1160
770 IF s$="dro" THEN j%=1:GOSUB 1570
780 IF s$="inv" THEN j%=1:GOSUB 1750
790 IF s$="fly" THEN j%=1:GOSUB 1810
800 IF s$="sai" THEN j%=1:GOSUB 1910
810 IF s$="lea" THEN j%=1:GOSUB 3420
820 IF s$="pad" THEN j%=1:GOSUB 1990
830 IF s$="cli" THEN j%=1:GOSUB 2130
840 IF t$="show" THEN j%=1:GOSUB 2050
850 IF s$="jum" THEN j%=1:GOSUB 3380
860 IF t$="go i" THEN j%=1:GOSUB 2220
870 IF t$="go o" THEN j%=1:GOSUB 2410
880 IF s$="buy" THEN j%=1:GOSUB 2540
890 IF s$="rea" THEN j%=1:GOSUB 2570
900 IF t$="inse" OR s$="lev" OR s$="for" THEN j%=1
:GOSUB 2650
910 IF s$="unl" THEN j%=1:GOSUB 2680
920 IF s$="sta" THEN j%=1:GOSUB 2810
930 IF t$="drin" THEN j%=1:GOSUB 2740
940 IF s$="sit" THEN j%=1:GOSUB 2780
950 IF t$="sear" OR s$="exa" OR s$="loo" THEN j%=1
:GOSUB 2840
960 IF s$="sw1" THEN j%=1:GOSUB 2900
970 IF s$="pre" OR s$="pus" THEN j%=1:GOSUB 2930
980 IF s$="ref" THEN j%=1:GOSUB 2970
990 IF s$="dan" THEN j%=1:GOSUB 3030
1000 IF s$="kil" OR t$="shoo" OR s$="fir" THEN j%=
1:GOSUB 3060
1010 IF s$="mov" THEN j%=1:GOSUB 3130
1020 IF t$="go u" THEN j%=1:GOSUB 3180
    
```



```

1030 IF t$="go d" THEN j%=1:GOSUB 3220
1040 IF s$="ope" THEN j%=1:GOSUB 3260
1050 IF t$="go b" OR t$="go h" THEN j%=1:GOSUB 332
0
1060 IF t$="answ" THEN j%=1:GOSUB 3340
1070 IF j%=0 THEN PRINT"I'M AFRAID THAT DOES NOT C
OMPUTE!!"
1080 WEND
1090 REM***PLAYER SUCCESSFUL*****
1100 GOSUB 280:GOSUB 280:INK 0,0:INK 2,6,0:CLS:PAP
ER 1:PEN 2:LOCATE 15,6:PRINT"YOU DID IT"
1110 PAPER 0:PEN 3:PRINT:PRINT"          UNDER YOUR
EXPERT CONTROL          YOU FLY THE LYNX JET TO
YOUR          HOME PLANET. ONCE MORE YOUR
          PEOPLE CAN ASSIST THE REBELS          IN
THEIR FIGHT AGAINST THE          FEDERATION"
1120 PRINT
1130 PRINT"          ....AS YOU LEAVE THE STAR SYSTEM
          YOU ARE UNAWARE OF THE PASSENGER          HIDIN
G IN THE CARGO HOLD.....          AN ANDROID WITH
AN ORANGE EMBLEM          ON HIS JACKET.....WAITIN
G.....          .....BIDING HIS TIME....."
1140 GOTO 4000
1150 REM***ROUTINES FOR PLAYER INPUT****
1160 REM***PICK UP ITEMS*****
1170 GOSUB 1480
1180 IF 1%<>1 THEN PRINT"I DON'T SEE A ";1$:RETURN
1190 u%=0
1200 FOR x=1 TO 25
1210 IF h%(x,1)=f% AND h%(z%(t),1)=f% THEN u%=1
1220 NEXT
1230 IF u%=0 THEN PRINT"IT'S NOT HERE!":RETURN
1240 IF t=2 THEN GOTO 330
1250 IF t=8 THEN ap%=1:GOSUB 440
1260 IF t=1 THEN ac%=1 ELSE IF t=3 THEN af%=1 ELSE
IF t=4 THEN am%=1 ELSE IF t=5 THEN aj%=1
1270 IF t=6 THEN ak%=1 ELSE IF t=7 THEN ai%=1 ELSE
IF t=9 THEN ar%=1 ELSE IF t=24 THEN al%=1
1280 IF f%=41 AND t=11 THEN GOTO 1460
1290 IF f%=46 AND t=11 THEN GOTO 1470
1300 IF t=12 THEN ag%=1 ELSE IF t=13 THEN an%=1 EL
SE IF t=14 THEN ao%=1:d$(13)=LEFT$(d$(13),21) ELSE
IF t=15 THEN av%=1 ELSE IF t=21 THEN aa%=1 ELSE I
F t=23 THEN au%=1
1310 IF t=10 THEN PRINT"HE CAN'T HELP YOU SO LEAVE
HIM ALONE!!!":RETURN
1320 IF t=16 THEN aq%=1:d$(32)=LEFT$(d$(32),80) EL
SE IF t=24 THEN as%=1
1330 IF t=17 THEN GOTO 300
1340 IF t=18 THEN PRINT"IT'S STUCK IN THE GROUND!!
":RETURN
1350 IF t=25 THEN GOTO 270
1360 IF t=19 THEN GOTO 340
1370 IF t=20 THEN GOTO 320
1380 IF t=22 THEN PRINT"IT'S TOO HEAVY TO PICK UP.
.TRY MOVING IT":RETURN
1390 REM
1400 REM CALCULATE PICK UP*****
1410 REM
1420 u%=0:FOR x=1 TO 4:IF w$(x)="" THEN w$(x)=i$(z
%(t)):u%=1:x=9
1430 NEXT x
1440 IF u%=0 THEN PRINT"DON'T BE GREEDY! ONLY 4 IT
EMS!":RETURN
1450 h%(z%(t),1)=0:RETURN
1460 f%=46:h%(11,1)=46:RETURN
1470 f%=41:h%(11,1)=41:RETURN
1480 REM***TWO-WORD INPUT*****
1490 1$="":FOR x=1 TO LEN(v$)
1500 IF MID$(v$,x,1)=" " THEN 1$=RIGHT$(v$, (LEN(v$
)-x)):x=x+50
1510 NEXT
1520 t=0:l%=0:IF LEN(1$)<2 THEN RETURN
1530 FOR x=1 TO 25
1540 IF LEFT$(z$(x),LEN(1$))=1$ THEN l%=1:t=x
1550 NEXT
1560 RETURN
1570 REM***CALCULATE DROP*****
1580 GOSUB 1480
1590 IF 1%<>1 THEN PRINT"I HAVEN'T GOT A ";1$:RETU
RN
1600 u%=0
1610 FOR x=1 TO 4:IF w$(x)=i$(z%(t)) THEN w$(x)=""
:u%=1
1620 NEXT
1630 IF u%<>1 THEN PRINT"I HAVEN'T GOT IT!":RETURN
1640 h%(z%(t),1)=f%
    
```



```

1650 IF f%>47 AND f%<55 THEN GOTO 300
1660 IF t=3 AND f%=47 THEN GOTO 300
1670 IF t=15 THEN av%=0:GOTO 380
1680 IF t=7 AND f%<55 AND f%>45 THEN GOTO 300
1690 IF t=4 AND f%=30 THEN PRINT"HERE'S YOUR TICKE
T! IT COSTS 100 ZARKS!!HOPE YOU ENJOY THE FILM":a
m%=0:GOTO 2100
1700 IF t=12 AND f%=27 THEN f%=21:ag%=0:GOTO 2120
1710 IF t=1 AND ac%=1 THEN ac%=0 ELSE IF t=3 AND
af%=1 THEN af%=0 ELSE IF t=4 AND am%=1 THEN am%=0
ELSE IF t=5 AND aj%=1 THEN aj%=0 ELSE IF t=6 AND a
k%=1 THEN ak%=0 ELSE IF t=7 AND ai%=1 THEN ai%=0
1720 IF t=8 AND ap%=1 THEN ap%=0 ELSE IF t=9 AND a
r%=1 THEN ar%=0 ELSE IF t=13 AND an%=1 THEN an%=0
ELSE IF t= 14 AND ao%=1 THEN ao%=0 ELSE IF t=16 AN
D aq%=1 THEN aq%=0 ELSE IF t=21 AND aa%=1 THEN aa%
=0 ELSE IF t=24 AND al%=1 THEN al%=0
1730 IF t=24 AND as%=1 THEN as%=0
1740 RETURN

1750 REM***INVENTORY*****
1760 PAPER 2:PEN 3:PRINT"YOU ARE CARRYING :-":PAPE
R 0:PEN 1:c%=0
1770 FOR x=1 TO 4:IF w$(x)<>" THEN PRINT w$(x):c%
=1
1780 NEXT:IF c%=0 THEN PRINT"NOTHING!"
1790 PRINT
1800 RETURN
1810 REM***FLY*****
1820 IF f%=79 AND as%=1 THEN GOTO 1830 ELSE 1840
1830 CLS:PRINT"YOU MAY HAVE ENOUGH FUEL TO REACH .
... ZARGOS!GOOD LUCK!":FOR x=1 TO 10:ENT 1,25,10,
10:SOUND 1,250,100,15,1,1:BORDER x,26:NEXT:CLS:f%=
1:BORDER 5:d$(79)="BY SOME SCORCHED GRASS!":d$(80)
="AT THE FOOT OF A HILL":m%(80,1)=79:m%(79,4)=80:R
ETURN
1840 IF f%=79 AND as%=0 THEN PRINT"FIRST YOU MUST
PUT SOME FUEL IN YOUR JET":RETURN
1850 IF f%=74 AND at%=1 AND xy%=1 THEN GOTO 1090
1860 IF f%=74 AND xy%=1 AND at%=0 THEN PRINT"YOU H
AVE KILLED THE TRAITOR BUT YOU MUSTREFUEL THIS JET
SO YOU CAN INFORM YOUR HOME BASE THAT THEY CAN R
ESUME CONTACT WITH THE REBELS!!!!":RETURN
1870 IF f%=74 AND at%=1 AND xy%=0 THEN PRINT"YOU M
UST FIND AND KILL THE TRAITOR BEFORE YOU LEAV
E!!":RETURN
1880 IF f%=74 AND at%=0 THEN PRINT"FIRST YOU MUST
PUT SOME JET-FUEL IN!":RETURN
1890 IF f%=1 THEN PRINT"YOUR VIPER JET IS INOPERAB
LE!":RETURN
1900 PRINT"SPROUT A PAIR OF WINGS FIRST!":RETURN
1910 REM***SAIL*****
1920 IF f%=45 AND ai%=1 THEN f%=48
1930 IF f%=56 AND ai%=1 THEN f%=53
1940 IF f%=46 AND ai%=1 THEN PRINT"THE WATER IS TO
O SHALLOW HERE FOR A SAILING BOAT!":RETURN
1950 IF f%>47 AND f%<55 THEN PRINT"FROM NOW ON....
JUST DIRECT THE BOAT":RETURN
1960 IF f%=57 AND ai%=1 THEN GOSUB 280:PRINT"I HOP
E YOU KNOW WHAT YOU'RE DOING!":FOR x=1 TO 2000:NE
XT:CLS:f%=54:RETURN
1970 IF f%=45 AND ai%=0 THEN PRINT"GET A BOAT FIRS
T!":RETURN
1980 PRINT"GET TO A BEACH FIRST!":RETURN
1990 REM***PADDLE*****
2000 IF f%=46 AND af%=1 THEN f%=47:RETURN
2010 IF f%=47 THEN PRINT"FROM NOW ON.....JUST DIR
ECT THE CANOE":RETURN
2020 IF f%=45 AND af%=1 THEN PRINT"THE SEA IS TOO
ROUGH FOR A CANOE!!!":RETURN
2030 IF f%=46 AND af%=0 THEN PRINT"GET A CANOE FIR
ST!":RETURN
2040 PRINT"GET TO A BEACH FIRST!":RETURN
2050 REM***SHOW*****
2060 IF ag%=1 AND f%<>27 THEN PRINT"NOT HERE!":RET
URN
2070 IF f%=27 AND ag%=0 THEN PRINT"GET A TICKET":R
ETURN
2080 IF f%=27 AND ag%=1 THEN GOTO 2110
2090 IF f%=30 AND am%=1 THEN GOTO 1570
2100 IF am%=0 THEN h%(12,1)=30:h%(4,1)=9:RETURN
2110 IF f%=27 AND ag%=1 THEN GOTO 1570
2120 IF ag%=0 THEN h%(12,1)=90:RETURN
2130 REM***CLIMB*****
2140 IF f%=1 THEN f%=2:RETURN
2150 IF f%=2 THEN f%=1:RETURN
2160 IF f%=75 THEN f%=74:RETURN
2170 IF f%=74 THEN f%=75:RETURN
    
```

```

2180 IF f%=80 THEN f%=79:RETURN
2190 IF f%=79 THEN f%=80:RETURN
2200 IF f%=69 THEN f%=75:RETURN
2210 PRINT"TRY SOMETHING ELSE!":RETURN
2220 REM***GO IN*****
2230 IF f%=31 AND am%=0 THEN PRINT"THE AUTOMATIC D
OOR DETECTS YOU HAVE NO MONEY...NO MONEY...NO ENT
RY!!!!":RETURN
2240 IF f%=35 THEN f%=34:RETURN
2250 IF f%=42 THEN f%=43:RETURN
2260 IF f%=44 THEN f%=40:RETURN
2270 IF f%=86 THEN f%=87:RETURN
2280 IF f%=65 THEN f%=64:RETURN
2290 IF f%=14 THEN f%=9:RETURN
2300 IF f%=15 THEN f%=89:RETURN
2310 IF f%=18 THEN f%=90:RETURN
2320 IF f%=31 THEN f%=30:RETURN
2330 IF f%=83 THEN f%=82:RETURN
2340 IF f%=68 AND st%=1 THEN f%=73:RETURN
2350 IF f%=26 THEN PRINT"YOU HAVE TO BE AN ANDROID
TO GET IN!":RETURN
2360 IF f%=25 THEN GOTO 360
2370 IF f%=27 AND ag%=0 THEN PRINT"GET A TICKET FI
RST!":RETURN
2380 IF f%=27 AND ag%=1 THEN PRINT"SHOW YOUR TICKE
T":RETURN
2390 IF f%=63 OR f%=68 THEN PRINT"IT'S LOCKED!":RE
TURN
2400 PRINT"TRY SOMETHING ELSE!":RETURN
2410 REM***GO OUT*****
2420 IF f%=89 THEN f%=15:RETURN
2430 IF f%=34 THEN f%=35:RETURN
2440 IF f%=21 THEN f%=27:RETURN
2450 IF f%=40 THEN f%=44:RETURN
2460 IF f%=43 THEN f%=42:RETURN
2470 IF f%=64 THEN f%=65:RETURN
2480 IF f%=30 THEN f%=31:RETURN
2490 IF f%=9 THEN f%=14:RETURN
2500 IF f%=82 THEN f%=83:RETURN
2510 IF f%=87 THEN f%=86:RETURN
2520 IF f%=73 THEN f%=68:RETURN
2530 PRINT"TRY SOMETHING ELSE":RETURN
2540 REM***BUY*****
2550 IF f%=30 AND am%=1 THEN PRINT"SHOW ME YOUR MO
NEY!":RETURN
2560 IF f%=30 AND am%=0 THEN f%=31:RETURN
2570 REM***READ*****
2580 IF f%=65 THEN PRINT"IT SAYS.....ZARB IS
LAND.....EAST :TO THE BEACH":RETURN
2590 IF f%=19 AND an%=1 THEN GOTO 2600 ELSE 2610
2600 d$(19)="IN THE CROWDED SQUARE":IF ad%=0 THEN
PRINT"MEET CONTACT... EMPTY HOUSE... NEAR THE DOCK
S....GET RID OF NOTE!":RETURN
2610 IF ao%=1 THEN GOSUB 280:PRINT"FIND TRAITOR..S
CARRED FACE..THE ISLAND OF ZARB....BEACH HOPPER..
...BY THE DOCKS...KILL TRAITOR AND FLY HOME!.....
....YOU WILL NEED SOME NEW JET-FUEL!":RETURN
2620 IF f%=9 THEN PRINT"FOR THOSE WITHIN THIS MARB
LE HALL.....PLEASE USE THE PAPER AND NOT THE WAL
L!!!!":RETURN
2630 IF f%=64 THEN PRINT"IT SAYS :- DO NOT PRESS!!
":RETURN
2640 IF an%=0 OR ao%=0 THEN PRINT"YOU HAVEN'T GOT
ANYTHING TO READ YET!":RETURN
2650 REM***INSERT/LEVER/FORCE*****
2660 IF f%=58 AND aj%=1 THEN PRINT"YOU MANAGE TO F
ORCE THE DOOR OPEN!":d$(58)="STANDING BY AN OPEN D
OOR":d$(63)="DEEP IN THE TUNNEL BY AN OPEN DOOR":m
%(58,3)=63:m%(63,2)=58:RETURN
2670 PRINT"THAT DOESN'T SEEM TO HELP!":RETURN
2680 REM***UNLOCK*****
2690 IF f%=68 AND aa%=1 THEN GOTO 2700 ELSE 2720
2700 IF ar%=1 OR as%=1 THEN PRINT"SLOWLY THE DOOR
OPENS..!!!":d$(68)="OUTSIDE A SECRET CAVE!":st%=1:
RETURN
2710 IF ar%=0 AND as%=0 THEN PRINT"YOU SUDDENLY RE
ALISE THAT YOU HAVE NO GUN OR PISTOL..IF THE TRA
ITOR IS BEHIND THE DOOR..IT WOULD BE SUICIDAL TO E
NTER!":RETURN
2720 IF aa%=1 THEN PRINT"THE KEY DOESN'T FIT.....
.....TRY USING SOMETHING ELSE!!!":RETURN
2730 PRINT"GET A KEY OR SOMETHING!":RETURN
2740 REM***DRINK*****
2750 IF f%<>38 THEN PRINT"GO TO THE BAR IF YOU MUS
T HAVE A DRINK!":RETURN
2760 IF f%=38 AND av%=0 THEN PRINT"YOU HAVE TO GET
IT FIRST!!!!":RETURN
    
```





```

2770 IF av%=1 THEN GOTO 1570
2780 REM***SIT*****
2790 IF f%=13 THEN d$(13)="YOU ARE SITTING DOWN..T
HERE IS SOMETHING UNDER YOUR SEAT..":m$(13,3)=0:RET
URN
2800 PRINT"HERE IS NOWHERE TO SIT!":RETURN
2810 REM***STAND*****
2820 IF f%=13 THEN d$(13)="IN THE BALCONY SEATING
AREA ..THERE IS AN EMPTY SEAT IN ROW...Z..":m$(13
,3)=16:RETURN
2830 PRINT"NOT HERE":RETURN
2840 REM***EXAMINE*****
2850 IF f%=88 THEN GOSUB 280:PRINT"IT'S THE ROOF!!
!":RETURN
2860 IF f%=13 THEN h%(14,1)=13:RETURN
2870 IF f%=19 THEN h%(13,1)=19:h%(9,1)=19:d$(19)="
IN THE CROWDED SQUARE":RETURN
2880 IF f%=4 THEN PRINT"HERE SEEMS TO BE SOMETHIN
G UNDER THE CRATE!":RETURN
2890 PRINT"YOU SEE NOTHING OF IMPORTANCE":RETURN
2900 REM***SWIM*****
2910 IF f%=45 OR f%=46 OR f%=56 OR f%=57 THEN GOTO
300
2920 PRINT"DON'T BE A SILLY BILLY!":RETURN
2930 REM***PRESS*****
2940 IF f%=64 THEN f%=90:RETURN
2950 PRINT"THE ONLY THING THAT NEEDS PRESSING....
.IS YOUR BRAIN!!!!":RETURN
2960 RETURN
2970 REM***REFUEL*****
2980 IF f%=74 AND aq%=1 THEN PRINT"...RE-FUELING..
.":FOR x=1 TO 2000:NEXT:PRINT"FUEL LOADED":at%=1:R
ETURN
2990 IF f%=79 AND ap%=1 THEN PRINT"...RE-FUELING..
.":FOR x=1 TO 2000:NEXT:PRINT"FUEL LOADED":as%=1:R
ETURN
3000 IF f%=74 AND ap%=1 THEN PRINT"DO NOT ATTEMPT
TO LOAD THIS FUEL! IT IS THE WRONG MIXTURE F
OR THIS JET!":FOR x=1 TO 10:ENT 1,10,10,5:BORDER
x,26:SOUND 1,50,100,15,1,1:NEXT:BORDER 5: RETURN
3010 IF f%=1 THEN PRINT"YOUR VIPER JET IS INOPERAB
LE!":RETURN
3020 PRINT"GET SOME FUEL FIRST!":RETURN
3030 REM***DANCE*****
3040 IF f%=37 THEN GOSUB 280 :PRINT"WHAT A DANCER!
!!!!!!!!!!!!":f%=38:RETURN
3050 PRINT"FIND A PARTNER FIRST!":RETURN
3060 REM***KILL*****
3070 IF f%=73 GOTO 400
3080 IF f%=44 THEN PRINT"YOU NEED TO GET CLOSER..A
ND YOU NEED A...WEAPON...BE VERY CAREFUL!":RETUR
N
3090 IF f%=40 AND ar%=0 THEN GOTO 320
3100 IF f%=40 AND ar%=1 THEN GOSUB 280:PRINT"THE G
UARD LIES DEAD!! HIS VICTIM IS YOURCONTACT!! HIS L
AST WORDS ARE..GO AND SEE ....BUTCH...":d$(40)="IN
A ROOM WITH 2 DEAD BODIES":d$(44)="AT THE TOP OF
THE STAIRS..OUTSIDE A ROOMWITH 2 DEAD BODIES IN IT
!"
3110 IF f%=40 THEN d$(42)="AT THE END OF ZYLKA ST
OUTSIDE A HOUSE. IT SEEMS SOMEONE HAS KILLED A ZAR
KONIAN GUARD.THERE ARE TROOPS EVERYWHERE!!!!!!":d$
(43)="AT THE FOOT OF SOME STAIRS":RETURN
3120 GOTO 320
3130 REM***MOVE*****
3140 IF f%=4 THEN bb%=bb%+1
3150 IF bb%=1 AND f%=4 THEN PRINT"THE CRATE SLOWLY
MOVES TO ONE SIDE...":h%(21,1)=4:RETURN
3160 IF bb%>1 AND f%=4 THEN PRINT"IT'S BEEN MOVED
ONCE ALREADY!":RETURN
3170 PRINT"NOT HERE!":RETURN
3180 REM***GO UP*****
3190 IF f%=43 THEN f%=44:RETURN
3200 IF f%=17 THEN f%=16:RETURN
3210 PRINT"TRY SOMETHING ELSE":RETURN
3220 REM***GO DOWN*****
3230 IF f%=16 THEN f%=17:RETURN
3240 IF f%=44 THEN f%=43:RETURN
3250 PRINT"TRY SOMETHING ELSE":RETURN
3260 REM***OPEN*****
3270 IF ak%=1 AND sr%=1 THEN PRINT"IT'S EMPTY!":RE
TURN
3280 IF ak%=1 THEN h%(5,1)=f%:sr%=1:RETURN
3290 IF f%=70 AND ak%=0 THEN PRINT"YOU HAVEN'T GOT
IT YET!":RETURN
3300 IF f%=63 OR f%=68 OR f%=58 THEN PRINT"IT'S LO
CKED!":RETURN

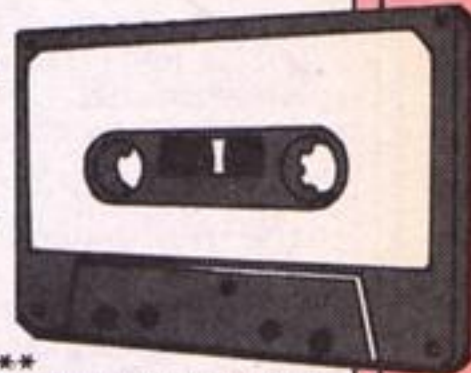
```



```

3310 PRINT"TRY SOMETHING ELSE!":RETURN
3320 REM***GO BEACH/HOPPER*****
3330 PRINT"JUST GET IT IF YOU WANT A RIDE!":RETURN
3340 REM***ANSWER*****
3345 IF ans%=1 AND f%=8 THEN PRINT"IT'S NOT RINGIN
G!!":RETURN
3350 IF f%=8 AND aa%=1 THEN ans%=1:GOSUB 280:PRINT
"ONCE YOU ARE PAST THE CHECK-OUT YOU CAN DISPENSE
WITH YOUR I.D.CARD. I WILL MEETYOU IN ZARKONIA SQU
ARE...":d$(7)=LEFT$(d$(7),62):d$(8)=LEFT$(d$(8),3
5):RETURN
3360 IF f%=8 AND aa%=0 THEN ans%=1:GOSUB 280:PRINT
"GET THE KEY UNDER THE CRATE AND ONCE YOUARE THROU
GH THE SPACE-PORT CHECK-OUT YOU CAN DISPENSE WITH Y
OUR I.D.CARD.....":d$(7)=LEFT$(d$(7),62):d$(8)
=LEFT$(d$(8),35):RETURN
3370 PRINT"NOT HERE!!":RETURN
3380 REM***JUMP*****
3390 IF f%=84 THEN GOTO 350
3400 IF f%=78 THEN GOTO 350
3410 PRINT"DON'T BE SILLY":RETURN
3420 REM***LEAP*****
3430 IF f%=84 THEN f%=78:RETURN
3440 IF f%=78 THEN f%=84:RETURN
3450 PRINT"DON'T BE SILLY":RETURN
3460 REM***OPENING TITLES*****
3470 CLS:PAPER 2:PEN 1:LOCATE 11,2:PRINT"RETURN TO
ZARKON"
3480 PAPER 0:PEN 3:PRINT:PRINT:PRINT" YOU A
RE ON YOUR WAY HOME FROM THE PLANET ZARKON,
WHERE YOU HAVE BEEN HELPING THE REBELS FIGHT
THE EVIL FEDERATION OF ZARKONIA....."
3490 PRINT:PRINT" YOU RECEIVE A SIGNAL FROM
THE REBEL COMMAND BASE THAT YOUR HOME
PLANET CANNOT SEND INTELLIGENCE REPORTS TO
THEM BECAUSE THERE IS A TRAITOR INSIDE THE R
EBEL CAMP..!!!"
3500 PRINT:PRINT" THE SUSPECT HAS FLED AND
MUST BE ELIMINATED! HE HAS INTERCEPTED
SOME VITAL SIGNALS AND INTENDS TO HAND THEM
OVER TO THE FEDERATION!!"
3510 PAPER 2:PEN 1:LOCATE 4,22:PRINT"PRESS THE <SP
ACE BAR> TO CONTINUE"
3520 a$=INKEY$:IF a$<>" " THEN 3520
3530 PAPER 0:CLS:PAPER 2:LOCATE 11,2:PRINT"RETURN
TO ZARKON"
3540 PAPER 0:PEN 3:PRINT:PRINT" YOU ARE ORD
ERED TO FLY TO THE CITY OF ZARGOS AND MAKE
CONTACT WITH REBEL FORCES THERE. THE CITY
HAS MANY DANGERS AND MANY STRANGE INHABI
TANTS!!"
3550 PRINT:PRINT" UNFORTUNATELY, YOU RUN OU
T OF FUEL BEFORE YOU REACH ZARGOS!!!!!"
3560 PRINT:PRINT" COMPLETE THE TASK AT HAN
D BY USING TWO-WORD COMMANDS SUCH AS...
-GO IN- OR -SWIM SEA- OR -FLY JET-"
3570 PRINT:PRINT" LIKE ALL CITIES ON ZARKO
N .. TROOPS ARE ON THE LOOK-OUT FOR ANY
REBEL SUSPECTS!!! BE VERY CAREFUL!"
3580 PRINT:PRINT" YOU HAVE 200 MOVES BEFORE
YOU ARE CAPTURED!! GOOD LUCK"
3590 RETURN
3600 REM***DATA*****
3610 DATA SITTING IN YOUR VIPER SPACE JET.
DAMAGE REPORT INDICATES YOUR JET IS NO LONGER OPE
RABLE.,0,0,0,0,OUTSIDE YOUR VIPER SPACE-CRAFT NEAR
A LARGE WAREHOUSE.,0,0,6,3
3620 DATA INSIDE A DIMLY LIT WAREHOUSE.,2,0,0,4,IN
THE WAREHOUSE. THERE ARE SOME CRATES STACKED AGAI
NST ONE WALL.,3,0,0,5,OUTSIDE A WAREHOUSE AND NEAR
THE MAIN TERMINAL BUILDING.,4,0,7,0
3630 DATA BY THE SPACE-PORT PERIMETER FENCE.,0,2,0
,0,INSIDE THE TERMINAL. SOME GUARDS ARE AT THE CHE
CK-OUT CONTROL. SOMEWHERE CLOSE APHONE IS RINGING
...????",0,5,12,8,IN THE TERMINAL BY SOME TELEPHON
ES. ONE OF THEM IS RINGING.,7,0,0,0
3640 DATA IN THE TOILETS. THERE IS A MESSAGE.....
ON THE WALL!.,0,0,0,0,OUTSIDE THE SPACE-PORT BY TH
E PERIMETER FENCE.,0,0,0,11,BY THE ENTRANCE TO THE
TERMINAL BUILDING,10,0,15,12,AT THE CONTROL EXIT.
ZARKONIAN GUARDS ARECHECKING I.D.CARDS!!,11,7,0,0
3650 DATA IN THE BALCONY OF THE CINEMA.THERE IS AN
EMPTY SEAT IN ROW 'Z'..,0,0,16,0,IN THE REAR OF THE
STALLS OUTSIDE.....A TOILET!!,0,0,17,0
3660 DATA ON THE WAY TO THE TOWN CENTRE NEXT TO A
CAKESHOP..IT IS REALLY A FRONT FOR A COMPANY TH
AT MAKES ILLEGAL SAUSAGES!.,0,11,18,0

```





3670 DATA AT THE TOP OF THE STAIRS BY THE BALCONY SEATING AREA.,0,13,0,0,AT THE FOOT OF A STAIRCASE IN THE FOYER.,0,14,21,0,ON THE N.W.CORNER OF ZARKO NIA SQUARE OUTSIDE A DRATONIAN JOKE SHOP. THERE ARE MANY GUARDS AROUND!,0,15,23,19

3680 DATA IN THE SQUARE. IT IS VERY CROWDED. YOU FEEL A HAND BRUSH YOUR POCKET!!,18,0,24;20,ON THE N.E. CORNER OF THE SQUARE.A GUARD SEEMS TO BE WATCHING YOUR MOVEMENTS.,19,0,25,0,IN THE FOYER BY THE EXIT.,0,17,0,0

3690 DATA ON ZYLKA ST. SOUTHWARDS.....IT LEADS TO THE OLD PART OF TOWN NEAR THE DOCKS.,0,0,28,23,ON THE S.W. CORNER OF THE SQUARE.,22,18,0,24,IN THE SQUARE.,23,19,0,25,ON THE S.E. CORNER OF THE SQUARE OUTSIDE A PHENALIAN SAUNA.,24,20,0,26

3700 DATA ON ZEEDA ST...BY AN ANDROID STRIP JOINT! ,25,0,29,27,OUTSIDE A CINEMA. THE FEATURE FILM IS.. BUTCH MARTIAN AND THE SUNDANCE ANDROID!!,26,0,0,0,ON ZYLKA ST. IT IS DESERTED AND QUIET.,0,22,31,0

3710 DATA ON ZOOLAM ST. THERE'S A BODY BY YOUR FEET.,0,26,35,0,INSIDE THE OFFICE. YOU CAN BUY TICKETS FOR THE CINEMA HERE.,0,0,0,0,ON ZYLKA ST. OUTSIDE THE ZARGOS TOURIST OFFICE.,0,28,36,0

3720 DATA NEAR A TABLE.AN ANDROID WEARING A JACKET WITH AN ORANGE EMBLEM ON IT IS SLEEPING.THERE IS A FUEL CAPSULE ON THE TABLE!!,0,0,0,0,33

3730 DATA STANDING BY A TABLE FULL OF STRANGE LOOKING ZARKONIAN GUARDS!!,32,0,37,34,INSIDE THE BAR BY THE EXIT.,33,0,38,0

3740 DATA ON ZOOLAM ST. OUTSIDE A BAR CALLED..... 'THE FLASHING BLADE'!!,0,29,0,0,ON ZYLKA ST .THE SEA AIR IS COLD AND DAMP,0,31,39,0,ON THE DAN CE FLOOR. AN ARKTURIAN DESERTWORM ASKS YOU FOR A DANCE!!,0,0,0,0

3750 DATA STANDING AT THE BAR.,37,34,0,0,ON ZYLKA ST. THE SEA AIR IS COLDER AND DAMPER!!,0,36,42,0, JUST INSIDE THE ROOM.THE ZARKONIAN HAS NOT SEEN YOU YET!!,0,0,0,0,ON ZARTON AVE. THERE IS A BEACH HOPPER ABOUT TO LEAVE FOR THE BEACH.,0,0,0,42

3760 DATA ON ZARTON AVE NEXT TO AN EMPTY HOUSE.YOU CAN HEAR SOME NOISES COMING FROM IT!!,41,39,0,0 ,IN THE HOUSE. THE NOISES ARE COMING FROM UPSTAIRS.,0,0,0,0

3770 DATA AT THE TOP OF THE STAIRS.BY AN OPEN DOOR YOU CAN SEE A ZARKONIAN TROOPER BEATING SOMEBODY! ,0,0,0,0,ON A DESERTED COVE. THERE SEEMS TO BE AN ISLAND ACROSS THE BAY...THERE ALSO SEEMS TO BE SOMETHING MOVING UNDER THE SAND!!,0,0,0,46

3780 DATA STANDING BY A BEACH HOPPER .....ON A DESERTED COVE.!!!!,45,0,0,0

3790 DATA OUT AT SEA.THE CURRENT IS STRONG HERE... SORT OF CIRCULAR.,0,46,49,0,OUT AT SEA..JUST OFF Z ARGOS.....THROUGH THE MIST YOU SEE AN ISLAND TO THE SOUTH!,0,45,50,0,THE CURRENT IS GETTING STRONGER ! IN FACT YOU HAPPEN TO BE IN A WHIRLPOOL!!,0,0,0,0

3800 DATA CLOSE TO THE ISLAND. THE SEA IS VERY CALM,0,48,53,51,FOLLOWING THE LINE OF THE COAST. THE SEA IS A LITTLE CHOPPY HERE.,50,0,0,52,NEAR A ROCKY COVE.THE SEA IS ROUGH HERE!,51,0,54,0,NEAR THE SANDY BEACH. THE SEA IS CALM.,0,50,56,0

3810 DATA CLOSE TO THE ROCKY BEACH!!! IT IS A VERY DANGEROUS PLACE TO LAND THE BOAT!!,0,52,57,0,IN A NARROW PASS NEAR THE BEACH.,0,0,59,56,ON THE BEACH. YOU CAN JUST MAKE OUT THE LIGHTS OF ZARGOS ACROSS THE BAY..TO THE NORTH.,55,0,0,0

3820 DATA ON THE ROCKY BEACH!..... THE WAVES ARE CRASHING IN!!!!,0,0,61,0,DEEP IN THE TUNNEL. THERE IS A DOOR SET IN THE ROCK.,0,88,0,0 ,DEEP IN THE NARROW PASS.,0,55,66,0,ON A DIRT TRAC

K. THERE ARE MOUNTAINS TO THE WEST.,0,0,67,61  
3830 DATA IN A CLEARING NEAR THE BEACH.AN OLD SIGN SAYS.....ZARB MINING Co.",60,57,0,0,DEEP IN THE TUNNEL. THE SUPPORT BEAMS DONOT LOOK SAFE!!,0,0,68,63,DEEP IN THE TUNNEL. THERE IS A DOOR SET IN THE ROCK!,62,0,0,64

3840 DATA IN THE TUNNEL BY THE EXIT. IN THE ROCK THERE IS A BUTTON WITH SOMETHING WRITTEN ON IT! IT IS OF .....DRATONIAN ORIGIN!,63,0,0,0,OUTSIDE A WELL LIT TUNNEL!!,0,0,69,66,NEAR A SHEER ROCK FACE BY A NARROW PASS.,65,59,0,0

3850 DATA ON A WINDING TRACK.,0,60,71,0,DEEP IN THE TUNNEL. THERE IS AN OLD DOOR SET IN THE ROCK.,0,62,0,0,AT THE FOOT OF A STEEP HILL.,0,65,0,0

3860 DATA ON THE DIRT TRACK.THERE IS A PILE OF OLD MINING EQUIPMENT AND A LARGE BOX.....IT DOESN'T SEEM TO BE LOCKED!,0,0,76,71

3870 DATA AT A FORK IN THE TRACK. THE TRACK RISES TO THE EAST.,70,67,0,72,ON A SLOPING TRACK.,71,0,77,0,IN A SECRET CAVE BY AN OPEN DOOR.....YOU CAN SEE A MAN WITH A SCAR ..!!!!!!!,0,0,0,0

3880 DATA SITTING IN A LYNX SPACE-JET.,0,0,0,0,AT THE TOP OF THE HILL NEXT TO A LYNX JET WITH AN ORANGE EMBLEM ON IT!! THE HILL SLOPES DOWN TO THE NORTH.,0,69,80,0

3890 DATA STANDING IN SOME THICK VEGETATION.,0,70,81,0,ON THE TRACK.,0,72,83,0,ON THE OTHER SIDE OF THE QUICKSAND. THE MAN HAS GONE!,0,0,0,0,SITTING IN YOUR VIPER JET.,0,0,0,0,OUTSIDE YOUR VIPER JET AT THE FOOT OF A HILL.,0,75,85,0

3900 DATA DEEP IN THE UNDERGROWTH. THERE IS A PASS TO THE WEST BUT IT IS BLOCKED BY SOME BOULDERS.,0,76,86,0,IN THE TUNNEL BY THE EAST EXIT.,0,0,87,83,OUTSIDE THE ENTRANCE TO A TUNNEL WHICH IS COLD BUT WELL LIT.,0,77,0,0

3910 DATA ON A NARROW PATH. A POOL OF QUICK SAND BLOCKS YOUR WAY. BEYOND IT YOU CAN SEE A FUEL CAPSULE AND A MAN PEERING AT YOU FROM BEHIND A TREE.. ....,0,0,0,85,ON A NARROW PATH.,84,80,0,0

3920 DATA OUTSIDE A WELL LIT TUNNEL!,0,81,0,0,IN THE TUNNEL BY THE WEST EXIT.,0,82,0,88,DEEP IN THE TUNNEL. THERE IS SOMETHING ABOVE YOUR HEAD!!,87,0,58,0,IN THE SHOP. YOU CAN HEAR PIGS SQUEALING FROM SOMEWHERE AT THE BACK OF THE SHOP!!,0,0,0,0

3930 DATA IN THE..OH DRAT...IT'S A DRATONIAN JOKE! ,0,0,0,0

3940 DATA AN I.D. CARD,56,card,A STURDY BEAM,68,beam,A CANOE,46,canoe,100 ZARKS(MONEY),56,money,A HEFTY CROWBAR,90,crowbar,A LARGE BOX,70,box,A SAILING BOAT,45,boat,A FUEL CAPSULE,78,fuel

3950 DATA A LASER GUN,90,gun,A SAD LOOKING BEGGAR,24,beggar,A HOPPER,41,hopper,A CINEMA TICKET,90,ticket,A NOTE,90,note,A SECRET MESSAGE,90,message,A GLASS OF SAJJI (JUICE),38,juice

3960 DATA A JET-FUEL CAPSULE,32,jet-fuel,A BASKING SHARK,53,shark,A SIGN POST,65,sign,A BODY,29,body ,A BLOODSTAINED KNIFE,29,knife,A KEY,90,key,A LARGE CRATE,4,crate,SOME ROPE,70,rope,A LASER PISTOL,77,pistol,A TENTACLE,45,tentacle

3970 PAPER 2:PEN 1:LOCATE 10,20:PRINT"PRESS THE <S PAGE BAR>

3980 a\$=INKEY\$:IF a\$<>" " THEN 3980

3990 CLS:LOCATE 10,12:PRINT"IT'S ALL OVER!!"

4000 PAPER 1:PEN 2:LOCATE 3,23:INPUT"DO YOU WANT TO PLAY AGAIN. <Y/N>";m\$

4010 a\$=INKEY\$:IF m\$="Y" OR m\$="y" THEN RUN: IF m\$<>"y" OR m\$<>"Y" THEN 4030

4020 a\$=INKEY\$:IF a\$="N" OR a\$="n" THEN GOTO 4030  
4030 PAPER 0:PEN 1:CLS:LOCATE 10,12:PRINT"THANK YOU FOR PLAYING":END





**TEXAS INSTRUMENTS**  
99/4A HOME COMPUTER SYSTEM

**SUPER SKETCH**

**99/4A**  
MAGAZINE

**POPEYE**

**APPOINTED DEALER**



**PARCO**  
Electrics



For a free price list and further information, send S.A.C. to:

PARCO ELECTRICS, 4 DORSET PLACE,  
NEW STREET, HONITON, DEVON,  
EX14 8QS. TELEPHONE (0404) 44425

PARCO ELECTRICS, AM GASTHAUS 2, 2971. HINTE 2,  
LOPPERSUM, WEST GERMANY.  
TELEPHONE (04925) 1773.

**PROGRAMMERS**

**£10,000 P.A.**  
**+ UNLIMITED**  
**BONUS**

We're looking for the best games machine code programmers in the country to join our exciting development team.

The rewards are exceptional for the right people who show a high degree of creativity plus a full knowledge of Z80 machine code programming initially for 48K Spectrum.

Write with details to: Mr M Mahony,  
Alligata Software Ltd., 1 Orange Street, Sheffield S1 4DW. Tel: (0742) 755796.



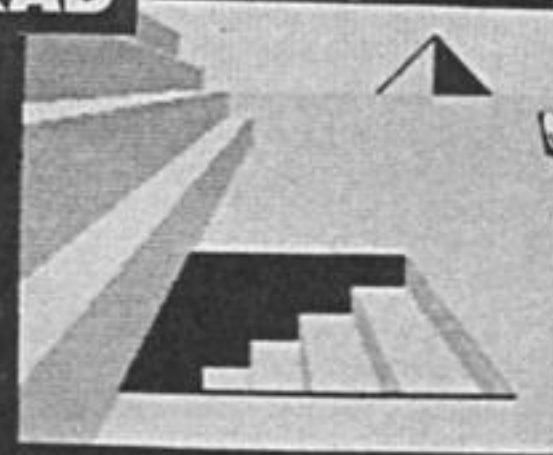
**THE TOMB of KUSLAK**

**AMSTRAD**

**INTRIGUE SOFTWARE**

Cranbrook Road, Tenterden, Kent TN30 6UJ  
Telephone 05806 4726

The opening scene ...



POSSESSIONS  
1 2 3 4 5 6

ENERGY  
DEFENCE  
STRENGTH

As you go down the unused stairs into the dimness below a heavy rumbling from behind seals the Tomb from Earthly light...

An interactive graphic and text adventure with over 240 locations. Available from your local stockist or direct from Intrigue. First class return post free for £7.50 PO/CHEQUE/ACCESS

**MICRO & VISION**

ALL THE LATEST SOFTWARE FOR SPECTRUM, BBC, COMMODORE, AMSTRAD ETC. CARRIED IN STOCK. MANY GAMES REDUCED TO CLEAR. RING US FOR AVAILABILITY.

- \* SINCLAIR SPECTRUM 48K — £99.95
  - \* PRISM VTX 5000 MODEM (SPECTRUM) — £69.95
  - \* QUICKSHOT II — £8.90
  - \* KEMPSTON PRO JOYSTICK INTERFACE — £18.95
- MANY OTHER ACCESSORIES & ADD-ONS AVAILABLE



8a Northways Parade  
Finchley Road, Swiss Cottage  
London NW3 5EN  
Tel: 01-722 7051

Open till 6.30pm. Mail order Add £1.00 P&P.



**AMSTRAD CPC464 ADVENTURES**

"NEMESIS ARNOLD ADVENTURES are like a breath of fresh air"

Tony Kendle, PCW Dec '85.

	£
THE TRIAL of ARNOLD BLACKWOOD	6.50
ARNOLD goes to SOMEWHERE ELSE	6.50
THE WISE and FOOL of ARNOLD BLACKWOOD	6.50
NEW TITLES	
ANGELIQUE: A GRIEF ENCOUNTER	6.50
"So I recommend it highly." PCW March '85.	
BRAWN FREE!... a full scale adventure at a silly price —	2.00
for the would-be adventurer (Yes, TWO!) (UK only)	

Chqs, POs for immediate despatch.

**NEMESIS (HCW), 19 Carlow Rd, Ringstead, Kettering, Northants NN14 4DW.**



**Fed up of making cups of coffee while your Spectrum delves through your files? Fret no longer**

**— Diana Smith shows you how to take short cuts**

# SORTING AT THE SPEED OF LIGHT

Many utility programs — personal files, spreadsheets, club membership lists etc, make use of a sort routine. Commonly, a Bubblesort routine is used. This has the advantage of being simple to program, but gives you time to make a cup of coffee and let it get cold before it has finished sorting large files.

This article demonstrates the Quicksort algorithm for sorting an array of alphanumeric characters with a Spectrum. This algorithm has the benefit of being very efficient for highly random arrays with many items to be sorted, taking a matter of seconds instead of minutes.

In addition, the routines described here allow you to sort the elements of an array by blocks of characters within each element. For instance, you may have an array which has each element containing name, height, inside-leg measurement etc, and you want to sort in order of height.

In BASIC, you could rearrange the array, element by element, to put height first and sort using the normal sort routines. Alternatively, you could use a modified sort as illustrated in Program 1 (Bubblesort) or Program 2 (Quicksort), where *f* and *t* define the block of columns by which the routine is to sort. Better still, you use the machine code version of Quicksort! Table 1 shows the enormous improvement in speed possible.

What makes Quicksort so efficient? The Quicksort algorithm uses the result of each comparison to help decide which elements to check next. It takes the bottom element of the array and carries out a series of tests and exchanges so that this element is left in its final position. All elements of lower value form a subarray below this element and all higher value elements form another subarray above it. These subarrays are treated in the same way until each subarray consists of one element. The array is then sorted.

**Table 1. Time to sort single column arrays in seconds**

Sort type	Rows	Array — type		
		Ordered	Random	Inverse
Bubblesort	10	2	2.1	2.1
	100	166	196	166
	200	662	777	663
Quicksort (BASIC)	10	1.5	1.9	1.9
	100	17	27	19
	200	39	57	42
Quicksort (machine code)	10	0.2	0.2	0.2
	100	0.6	0.6	0.5
	200	0.7	1.4	0.8

```

98 REM Program 1
99 REM bubblesort
100 FOR i=1 TO row-1
110 LET j=i+1
120 FOR k=j TO row
130 LET l=row+j-k
140 IF a$(1,f TO t)>a$(i,f TO t) THEN GO TO 160
150 LET d%=a$(1): LET a$(1)=a$(i): LET a$(i)=d%
160 NEXT k
170 NEXT i
180 RETURN
  
```

The Bubblesort algorithm starts with the bottom element of the array, compares it with higher elements until an exchange is needed, swaps the elements and continues up the elements in a similar fashion until it gets to the top. It then goes back to the bottom and repeats the whole process until the array is sorted. It is simple but slow.

A BASIC version of the Quicksort method is given in Program 2 and should be compared with the Bubblesort method of Program 1. Quicksort needs two arrays to hold markers for the subarrays. The size of these arrays varies with the size of the array to be sorted. Program 2 will cope with arrays of up to about 4,000 elements. The machine code version will handle arrays with up to 255 elements, each of which can be up to 255 characters in length.

Before entering the machine code version of Quicksort you should make space above RAMTOP.

Key in the following statement as a direct command:

```
PRINT (PEEK 23730+256*
PEEK 23731--600)
```

Press ENTER and note down the number shown. This number will be referred to as 's'

for the rest of the article and will be the start location for the machine code after RAMTOP has been lowered by 601 bytes. Again, as a direct command, key in

```
CLEAR (s-1)
```

and then press ENTER. RAMTOP has now been lowered to make room for the code.

Program 3 gives a loading routine for the machine code held in the data statements. Type this in and save it on tape as 'load code'. When you have verified the tape you are ready to load the code above the lowered RAMTOP.

RUN Program 3, entering the value of *s* when prompted for 'start address of code?'. If you made an error when keying in the program, you will see an error warning as the program stops. If an error is trapped, correct the data in the line indicated, save the corrected program and run it again until the 'Data correct' message is achieved.

As written, the code will run on a 48K Spectrum directly below the user defined graphics area. If you have a 16K Spectrum or your 'start address of code' is lower than 64767, you need to key NEW and key in Program 4. RUN this program and again answer with the value of *s* when prompted







# SORTING AT THE SPEED OF LIGHT

```

9498 REM Program 4
9499 REM Relocate code
9500 DEF FN l(c)=c-FN h(c)*256
9510 DEF FN h(c)=INT (c/256)
9520 INPUT "start address of code?",s
9530 FOR n=1 TO 9
9540 READ a,b
9550 LET c=s+b
9560 POKE s+a, FN l(c)
9570 POKE s+a+1, FN h(c)
9580 NEXT n
9590 DATA 48,0,27,562,247,579,268,579,337,579,514,
255,528,562,551,220,559,206

```

```

398 REM Program 5
399 REM test
400 CLEAR : INPUT "Set array size""rows?",row: I
NPUT "cols?",col
410 CLS : INPUT "Set array type""o=ordered""r=r
andom""i=inverse ordered",o$
420 DIM a$(row,col): RANDOMIZE 1
430 FOR r=1 TO row
440 FOR c=1 TO col
450 IF o$="o" THEN LET a$(r,c)=CHR$ r
460 IF o$="r" THEN LET a$(r,c)=CHR$ (RND*9+48)
470 IF o$="i" THEN LET a$(r,c)=CHR$ (256-r)
480 NEXT c
490 NEXT r
500 BEEP .25,1
510 INPUT "sort from col?",f: INPUT "sort to col?
",t
520 INPUT "Enter type of sort""b=bubblesort""q=
basic quicksort""m=machine code quicksort",s$: IN
PUT "start timer & press ENTER",z$
530 IF s$="b" THEN GO SUB 100
540 IF s$="q" THEN GO SUB 200
550 IF s$="m" THEN POKE 64767+35,f: POKE 64767+3
6,f: RANDOMIZE USR (64767+46)+CODE a$(1)
560 CLS : PRINT AT 11,13;"SORTED": BEEP .25,1: ST
OP

```

to clear the basic program from memory. Then key in Programs 1, 2 and 5. RUN this combined program by keying

GOTO 400 ENTER

each time you want to try a new sort.

As an example, let's set up a 20-row, 10-column random array.

Key GOTO 400 ENTER

When prompted for 'rows?', key

20 ENTER

When prompted for 'cols?', key

10 ENTER

and when prompted for 'array

type?', key

r ENTER

Wait for a BEEP which shows that the array has been set up.

Let's sort the array in order by the block from column 2 to column 3. When prompted by 'sort from col?', key

2 ENTER

When prompted by 'sort to col?', key

3 ENTER

When prompted for 'type of sort?', key

b ENTER

for the Bubblesort method. Then simultaneously start a timer and press ENTER. Stop the timer when the BEEP is heard. The sort has been completed. If you print the array using

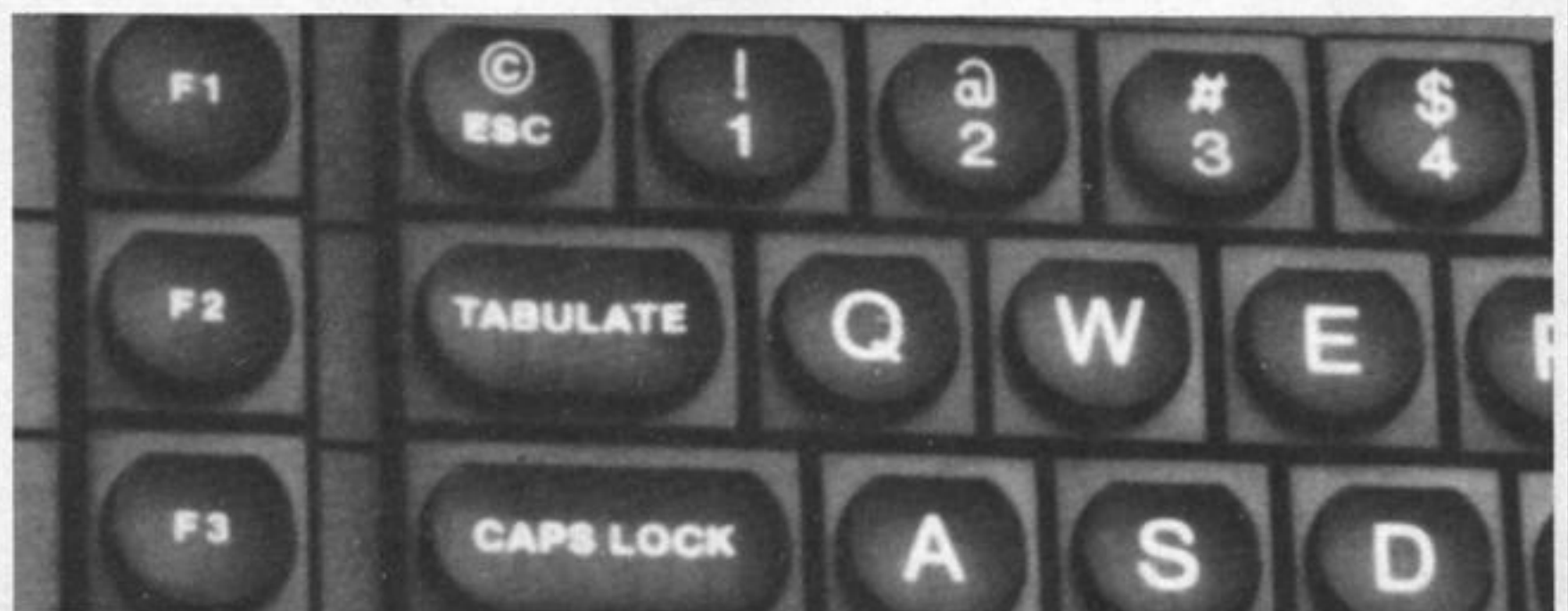
```
FOR n=1 TO row:PRINT a$(n):NEXT n
```

as a direct command, you can see that the array has been sorted by columns 2 and 3.

Note that this demonstration program assumes that the product of rows\*columns does not exceed 255.

Table 1 was produced with this program using single column arrays. The improved speeds of the Quicksort routines are clearly shown.

All that remains is for you to incorporate the Quicksort routines into your own programs. Shame about the coffee!





**Study our book reviews before you invest your money. It's worth while!**



**The Art of Micro Computer Graphics for the BBC Micro and Electron**

The graphics commands in BBC BASIC are some of the most powerful available on a home computer. They are also some of the most complex. The time taken to master such commands can be greatly reduced with the help of a good manual.

This book could be just the thing as it must be one of the most comprehensive texts available. In 430 pages it covers every aspect of graphics on the BBC. Just a few of the topics are the GCOL statement, two- and three-dimensional drawing, hidden surface removal, mixing colours, graphics input devices. The list is endless.

The book is liberally sprinkled with illustrations. Having glanced through the colour plates at the centre I was itching to type in one of the tessellation programs. Tessellations are shapes which fit together so they cover a surface leaving no gaps, and creating fascinating patterns.

All programs included are beautifully structured, making it very easy for the user to take procedures from the book and put them to work in programs.

This book, whilst not being the cheapest around, weighing in at £14.95, is definitely excellent value for money. **J.R.**

**Price:** £14.95

**Publisher:** Addison Wesley

**Address:** 53, Bedford Square, London WC1B 3DZ



**Advanced machine language book for the Commodore 64**

The majority of machine language and reference books cover an introduction to assemblers, machine code and how to create a few effects on your C64. This book continues where the others finish.

The first chapter starts by giving all of the theory behind floating point arithmetic: how it is stored and how to understand its binary form. It then goes on to list methods of converting between the various numeric formats within the C64. The maths routines in the ROM chip are explained in detail, as are the methods of using them. The chapter finishes by giving an explained listing of a program to calculate polynomials.

In the second chapter everything you always wanted to know about interrupts is covered. This includes descriptions of the ROM routines used. It then continues to give examples of how to handle your own interrupts which can be generated by some of the controlling chips within the computer. There are numerous program examples; these are all annotated and help understand a much avoided subject by other books.

The third and final chapter covers methods of expanding the operating system to include your own routines. Example programs are given covering a multitude of extensions to the BASIC language. One of these allows you to create new BASIC keywords for your own commands. The book finishes by explaining the theory behind connecting a Centronics printer to your computer: as usual it gives an example which proves the point.

This unique book is aimed at machine code programmers. It is truly a m/c Bible! **K.I.**

**Publisher:** First Publishing

**Address:** Unit 20B, Horseshoe Rd, Horseshoe Ind Est, Pangbourne, Berks

**C64**



**BASIC Programming on the Amstrad**

The manuals supplied by computer manufacturers vary tremendously from the painstaking and often witty Sinclair, through the deliberately skeletal Commodores, to the vastly detailed adventure game of the BBC! Amstrad seems to have taken a middle course giving plenty of detail, a few program fragments, and explanations rather too terse for the first time user.

Wynford James' 229 page volume makes no assumptions about what you know, starting right from the beginning with a clear description as to what a computer is and does, then gets you straight into the business of printing to the screen so at least you can see something for your labour! The style is easy going and informative which is quite rare. Most computer experts are not good when explaining to beginners.

The reader is taken through simple programming, then quickly on to simple graphics. Loops of the WHILE-WEND and FOR-NEXT varieties, IF-THEN decisions, and arrays are all covered, as are games and graphics, sound and music, and cassette files. There is also a very worthwhile chapter on program planning.

Nothing of substance is missed out, yet all the facilities which will interest the first time user are clearly explained with the aid of diagrams and computer originated listings for you to type in. It's much easier to understand than the manual, and by the time you've done all the exercises you should be well and truly in command of the 464. Not cheap, but definitely valuable! **D.M.**

**Price:** £7.95

**Publisher:** Micro Press

**Address:** Castle House, 27 London Rd, Tunbridge Wells, Kent

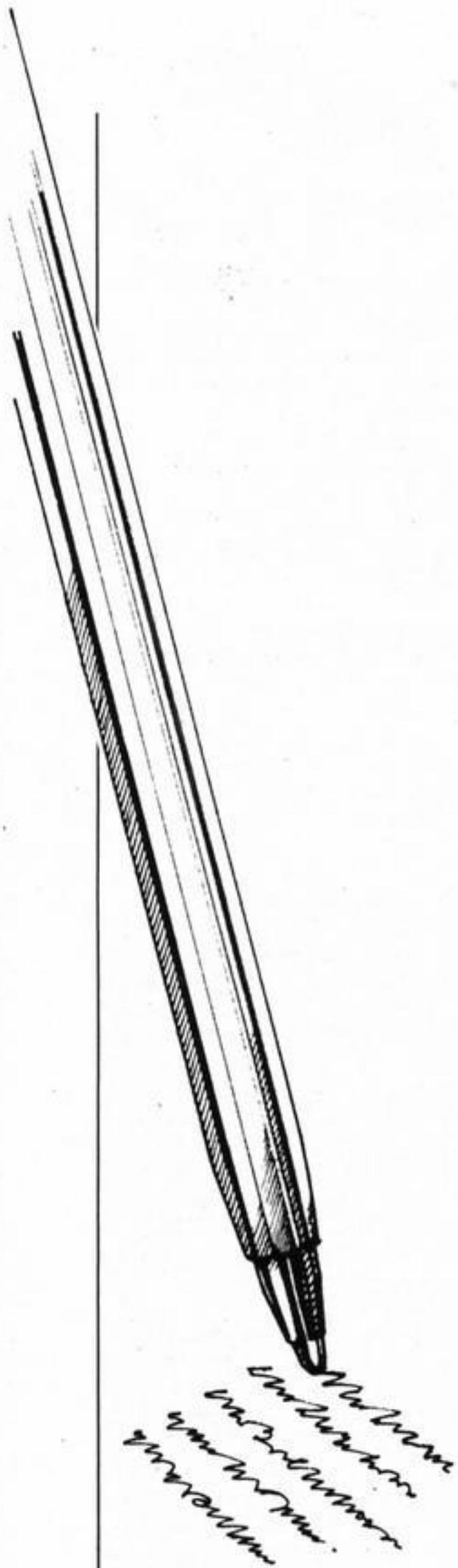
**AMSTRAD**



**BOOKS**







**You've spoilt it!**

I think HCW has been spoilt completely.

If I want to read jokes, I'll buy a comic or a jokebook.

It seems that HCW favours Amstrad, BBC and Spectrum machines (in that order). Commodore and Oric follow. Texas has fallen behind and Atari seems right out of it. It must be seven or eight weeks since an Atari program was published.

I have an Atari 800XL and I can only read adverts and the occasional decent letter. I think 45p is too much for that.

**N Middleton, Immingham**

**Penpal Patrick**

I am a 16-year-old Belgian VIC-20 owner and I would like to correspond with an English VIC-20 owner. It will help my English, which isn't very good, and we will also be able to swap ideas etc.

I have had my VIC-20 for about three months now and it is still unexpanded. Here in Belgium, it's sometimes difficult to get good software. I think that's a pity because the VIC-20 is a very good machine.

Oh, yes, you can get games here but serious software is very hard to find and when you do find some it's often on disc and I've only got a C2N datasette.

I'd like to know how the situation in the UK compares with this.

**Patrick Verhoeven, Ertbruggestraat 37,2uo Wijnegem, Antwerp, Belgium**

**Secret of success?**

I would like to ask Neil MacLennan a question: how did you manage to beat the computer 9-0 and 7-0 on Match Day? The most I can manage is something like 1-0 and 2-1 although I have won the FA cup twice and got to the semis on numerous occasions.

**R Wibberley, Wombwell**

**High price of repair**

Our computer was taken into a local shop for repair two weeks ago. Today we heard that Texas Instruments, to whom the computer was sent, is asking £65 before the computer is opened up to see what is wrong. Apparently if the modulator is at fault it will cost us a little under £40 to put right.

To me, this is exorbitant. Not only has Texas ceased to produce the computer, hence reducing its price drastically, but the cost of expanding has remained high. By charging £65 for repair, however major or minor, we find that it is not worth having our computer repaired and we are not in a financial position to buy another.

The cause of our trouble was that, when in extended BASIC, I typed ON ERROR and then started to type the program line indicated in ON ERROR. Once I had typed in the line number concerned the computer locked. I then switched the computer on and off but from then on I have been unable to tune in the master system. Has anybody got any ideas on this?

I would obviously be very interested in other readers' experiences of Texas Instruments' support for this computer and I would also like to know if anyone else has had a similar problem when typing in a listing.

**Anne Thomas, 15 Anson Way, Braintree, Essex CM7 6TN**

**Micros aren't indisposable**

I am writing in answer to the letter "I'm alright Jack" in HCW 90. I agree with the reader who sent this.

In summer 1982 I bought an Oric 48K. That was before anyone could clearly see what would happen with software support. At several points I found Oric better than Spectrum when comparing the two.

There are many people who thought the same, and if you look in magazines for used machines I think you'll find that Orics come cheaper. This too can count for some people who just want a machine to learn BASIC etc.

I'm still satisfied with my machine. I've got the programs I need, a printer and I'm in the process of buying a disc drive. Why do people need to buy all those

games? I've got about 20 which I've bought and about 50 which I've found in magazines and some are great fun to play.

But I did not buy the machine just to play the latest games. Those people who have, should buy another computer if they can afford it. Micros and hardware are not things we can change every month, not to mention software.

I hope other readers don't expect their parents to spend lots of money buying the latest chartbusters.

I think all computer owners (and those thinking of buying one) should bear in mind that with the state of the industry micros which are new today will be old tomorrow.

**Jorg Bjosvik, Halden, Norway**

**Long-term reader**

I buy your magazine every week and I have got every copy of it since the first one. I like the new look to the magazine because it has got some great features, but I would just like to say that you should expand your cartoon to about half a page.

I own a C64 and ever since I got the first magazine I have typed in every single program

and read probably every single review. Your reviews give me lots of ideas of what games I should buy. I have bought over 200 games by reading your magazine every week. Altogether I have played over 300 games and most of them are due to your great magazine.

**Nicholas Greenhalgh, Radcliffe**

Home Computing Weekly,  
No 1 Golden Square,  
London W1R 3AB.



### Help me with my typing!

I am a Pakistani student in my first year and have been awarded the Pakistani Science and Computer Club medal. I am very pleased to have the opportunity to write to you and I would like to say that HCW is the best computer magazine around.

I am an SV1.328 owner and I would like to thank you for your support of my SV1 computer. I would also like to thank you for publishing yet another excellent game for the Spectrum by S Roberts in HCW97.

I am very worried about the computer programs that you publish because when I sit in front of my computer and start to type, it takes three to four hours to complete a program. Perhaps you could help me with this problem.

**Adnan Ahmed Oureshi, Karachi, Pakistan**

*It takes everyone a long time to type in a good computer program and although it may seem a lot of work is usually worth the effort. There is no way to speed up your typing apart from practicing and taking care. If we published shorter listings then the resulting games would not be nearly as interesting.*

### True to life

May I compliment you on your new look magazine. I find it most interesting. I especially liked The Laws of Computing (HCW 103). I thought it extremely funny and very true to life — it sounds just like my computer.

I agree with L Tomlinson in HCW 103. Could you please give tips on adventures? Perhaps you could have a tips page?

**C Tomlinson, Havant**

*Hints and tips on adventures are covered in our regular Ventures column, by Peter Sweasey. If you have any adventure queries — or solutions — write to him, care of HCW, No.1 Golden Square, London W1R 3AB.*

### Chart mix-up

While reading HCW 100, I noticed a letter about a confusion with the Gallup chart. I also see a possible source of mix-up. I think M Ayland was referring to the fact that, in the individual lists a game could be, for instance, second, but in the overall charts it could be overtaken by something lower down in the list.

I realise that the reason is that some games are for more than one computer. Please could you have clearer charts without all the different makes of one game bunched together, even if it does mean some computers don't get a look in.

**S Paget, Uckfield**

*The Gallup chart is an accurate reflection of the overall sales of a game. We include individual charts so that owners of the most popular computers can understand how the chart is broken down into machine specific components.*

### Don't forget the Apple

As I have looked through your magazine in the newsagents, I have been very disappointed to find that you do not appear to have any coverage of one of the best machines on the market — in my opinion even better than the Spectrum and Atari — in the home end of the market and superior to the Apple IIe,

### Chess problem

I feel I must comment on DM's review of Superchess in HCW 103. The review appears to be that of the Amstrad version which seems to be similar to a version of Superchess 2 of earlier Spectrum days.

The picture above the review shows Superchess 3.5 which is a fairly strong Spectrum program which replies in 5-999 seconds per move, has an on-screen clock, displays up to 10 half moves (plies) and can solve problems of up to mate in four. The review would there-

### Letter from abroad

I understand Mark Ottaway's criticisms (HCW 97) and I agree with his point of view as here in Portugal the situation is quite similar concerning the TI computer. You know, it's very hard and awfully expensive to get programs, hardware, or even assistance as the computer is not seen in the shops anymore and mail order takes a long time, effort and money.

I don't have a single program that has been bought on cassette. All of them are from magazines or books or bought in modules. I don't know the English or American program standard so you can imagine how important HCW is to me!

The situation of the Spectrum over here is the opposite — thousands of games (Portuguese and

British), astonishingly quite recent; any kind of hardware (even floppy discs); hundreds of magazines and books.

If in England the Texas can be considered a dead machine, in Portugal it is dead and buried as it has practically no support (except some magazines like HCW, a few books and the most valuable help from Parco Electronics and the TI Home Computer Users Club).

In my opinion there should be a book for the TI with hints and tips with special colour graphics and sound effects subroutines. These are often discovered by chance and many of us TI users know little tricks that help or that have impressive results. I have got a few little programs.

**Pedro Magalhaes, Portugal**

the Commodore and many other eight-bit machines in the business area.

I have used the Apple IIe and the Commodore for business and I have now spent over £1500 on my selection of hardware and software. The choice, needless to say, was none of the above machines, but a Memotech RS 128 with twin disc drives, printer equivalent to an Epson MX80 and monochrome screen, all as a bundle from Memotech. The machine is supplied with an excellent word processor and spreadsheet. It is capable of operating what appears to be many of the normal industry standard CP/M programs. The drives can be configured to emulate a number of other

machines, including IBM PC and Kaypro.

As the machines in the Memotech series become more and more popular the potential readership will grow. If you are not featuring the machine in your magazine you will of course be losing out on the number of readers. I would therefore strongly recommend that you start to feature this machine and, I understand from the User's Club, that you may actually gain another advertiser in the form of Memotech themselves, who have given me very good support both on their hardware and software.

**C J Greenway, Chipping Norton**

fore midlevel readers and deter them from buying 3.5.

My own view is that the earlier Superchess 3.0 plays a better game at level nine than any of 3.5 levels. I have found that when entering problems from newspapers and magazines version 3.0 is more likely to play the best move.

The problem mode for mates of up to four seems to be the same in both versions, taking the same time to solve identical problems.

However, it would probably be a good idea to

ask chess experts to review programs such as the above, as the majority of reviews I have read, not only in your magazine, appear to be misleading and inaccurate.

**David Egdoll, Glasgow**

*As far as we are aware, the review is for the correct chess program. At HCW we try to match the program with the reviewers interests; however, we are interested in hearing from specialist users who would like to review software in a particular field.*



# HOME COMPUTING WEEKLY CLASSIFIED

Lineage:  
35p per word



01-437 0699  
EXT 322.

Semi display: £7.10 per single column centimetre  
Ring for information on series bookings discounts.

Send your requirements to:  
**David Horne**  
**ASP LTD.**  
1 Golden Square,  
London W1R 3AB

All advertisements in this section must be prepaid.  
Advertisements are accepted subject to the terms and conditions printed on the advertisement rate card (available on request).

## Computer Disks

### FLOPPY DISCS

5 1/4" bulk packed by MEMOREX and OTHER MAJOR MANUFACTURERS from 89p each + VAT. Please phone for minimum quantities and other details

**BOLTON WELLS LTD 01-435 2411**

## For Hire

### ORIC, ATMOS, COMMODORE 64, LYNX SOFTWARE LIBRARY

Over 150 Oric and 200 Commodore 64 titles.

Stamp for details:-

**Les Wilson 100 Blenheim Walk, Corby, Northants.**

To hire a computer from Spectrum 48K upwards, please phone or write to Business & Computer Services, 294a, Caledonian Rd., London N1 1BA Tel. 01 607 0157

### WIN A COLOUR T.V.

Spectrum - Oric - Atmos - QL Software Library  
FREE MEMBERSHIP —  
FREE ENTRY TO DRAW  
S.A.E. FOR DETAILS TO:—  
**HIRE SOFT, 113 BROOMFIELD RD, MARSH, HUDDERSFIELD (state micro)**

Spectrum tape library games, utilities, for details S.A.E. 'Soft by Post' 14, Blakeley Avenue, Wolverhampton. Free membership.

## For Sale

### Tascomm & Tasword +

Tasword +: Efficient & user-friendly use of microdrives or discs. Single key save & erase to update your text frequently. Essential for professional writers. Save part text only for later merging into another file.  
Tascomm: Squirt text into your office Apricot, IBM, Sirius and so on with the RS232 cable and Interface 1.  
£7 on Microdrive. £6 on cassette. Tasword Two if you don't have it already at £12.50 on cassette. From:  
**WIMSOFT, (HCW), 20 Brookside Road, Wimborne, Dorset BH21 2BL**

Xerox computer with Diablo Printer, line feed plus stationery etc, plus £5000 software which contains a full accounts package. An absolute bargain at £2750. Tel: 01-979 5889

### CURE ALL YOUR CAR'S ILLS

Car owners! Let your home computer start saving you money, use this revolutionary new tool "Car Cure" to help you find faults on your car. **Trace 300** symptoms and **Locate 900** fault with the support of your own expert mechanic then **determine** the cure. **48K Spectrum version available now only £9.95.**

Available direct or send s.a.e. for detailed guide to the program to:

4 Clarence Drive (Dept HCW)

East Grinstead.

W Sussex RH19 4RZ

Tel: (0342) 28188



## Libraries

**BBC B/Electron/Dragon** software library — Membership £5.00. — Tapes 1 (+30p P&P). Stamp for details. E. Tucker, (H) 58, Blenheim Walk, Corby, Northants.

## Hardware

### CBM 64 VIC-20

TAPE TRANSFER —  
DUAL CASSETTE INTERFACE  
It is quick and easy to transfer any cassette program with TRIGSOFT's DCL 1 interface. Duplicates all turbos, m/code, data files etc. If a program can be loaded it will be transferred exactly on a second datasette.

Send £10.00 inc p&p to:  
**Trigsoft, (Dept HCW)**

161-163 Rutland Street, Grimsby, South Humberside, DN32 7NP

## Software

### CBM 64 UNIFILE 64

Filing programme for small businesses or home use with index, sort, compare, update etc. Save to tape — disc or printer.  
Disc price £8.00, cassette £6.95.  
**AC SOFTWARE, PO Box 3, Burntwood, Walsall WS7 9EE.** All prices include P&P

### ORIC BARGAINS

From £1.99. Games and serious software, books and accessories. SAE for list to  
**SGC (mail-order), 20, Meadowcroft, Euxton, Chorley PR7 6BU.**

**RACEHORSE TRAINER** And **Stock Car** 48K SPECTRUM. Two challenging sport simulations to test your skill and judgement. Both are complex strategy games. On one tape for **ONLY £3.95 (inc.!)** (2x17p stamps for FREE brochure) to **5D PROGRAMS, (0783) 261405, 12 FLEMING FIELD, SHOTTON COLLIERY, CO DURHAM.**

## WD Software

For the QL:—

**WD Utilities (3rd ed)** (base £5.50)  
View 60-file DIRectory on one screen, one-key LOAD, COPY or print 60 files with one key (allows for namesakes). Multiple FORMATting to prevent corruption by stretching of tape. TOOL kit to give dated, numbered modules in program development. PRUNE old files to release space (one key DELETEs a file). Full instructions in QUIET file. Use up to 6 EXTRA MICRODRIVES (add on your Spectrum ones!)

**WD Utilities for CST Discs** (base £8)  
100-file capacity, for CST/Computamate disc system WITH microdrives.

**WD Morse Tutor** (base £4)  
Specification as for Spectrum, but no speech (hurry up, Currah!)

**RefQL (1st ed)** (base £1)  
100+ useful QL references in an ARCHIVE file.

For the 48K Spectrum:—

**WD Morse Tutor** (base £4)  
From absolute beginner to beyond RYA and Amateur Radio receiving. Adjust pitch. Set speed to your test level (4-19 wpm). Learn from single characters, via groups with wide spaces to random sentences; decrease spacing to normal. Write down what you hear, then CHECK on Screen or Printer or LISTEN to phonetic TALKBACK from Currah Micro-Speech if fitted. Also own message, random figures, letters or mixed.

**Tradewind** (base £4)  
Sailing/trading strategy game with graphic surprises.

**Jersey Quest** (base £4)  
Text adventure with Bergerac and the Dragon.

### Prices

Spectrum Cassettes — base price only

QL or Spectrum Microdrives — £2.00/cartridge plus base price

5.25" floppies £2 plus base (SPDOS for Spectrum)

Two or more programs on one medium — pay medium + base, e.g. WD Utilities and RefQL for £8.50, but IMPOSSIBLE to mix QL and Spectrum programs on one medium. Send OUR cartridge and 25p to update earlier editions.c

**WD Software, Hilltop, St Mary, Jersey, C.I.**  
Tel (0534) 81392

## Software Games

### AMSTRAD CPC464 DISCOUNT SOFTWARE

**£4.95:** Er'bert, Forest World's End, Jewels Babylon, Message from Andromeda, Mini Office  
**£5.95:** Cricket, Flight Path 737, Fruity Frank, House Usher, Moon Buggie, Special Ops, Star Avenger, Emerald Isle, Sir Lancelot.  
**£6.95:** Blogger, Dark Star, Descend of Pie, Football Man, Hunchback, Software Star, Survivor, Technician Ted.  
**£7.95:** Centre Court, Grand Prix Driver, Fighter Pilot, Manic Miner, Pyjamarama, Soreery, Jet Set Willy.  
**£8.50:** Battle for Midway, Ret. to Eden, Ring of Darkness  
**£17.95:** Home Budget, Screen Designer, Tasword 464.  
Ch/PO's to: **OJ SOFTWARE (SAE for list)**  
273, Mossy Lea Road, Wrightington, Wigan, Lancs. Tel: (0257) 421915.  
Buy 2 tapes or more + deduct 50p per item

## Software Educational

Special offer! Beat the teacher's strike. Safeguard your 'A' Level Physics pass. Examination revision cassette for 48K Spectrum. £3.95. Cheques/PO to Dr J D Hughes, 50 Leach Lane, St Helens, Merseyside WA9 4PU

### TI-99/4A Software

#### TI-99/4A:

Soccer Supremo, Soccer management game (HCW ★★★★★); Pirate Island, board game simulation (HCW ★★★★★); TI Cricket, limited overs test match (HCW ★★★★★), £4.99 each. 2 for £8.99 or 3 for £12.50 from: **Dromeda Software, 56 Wells Street, Haslingden, Lancashire BB4 5LS**

## User Groups

**TI-99/4A Nationwide User Group**  
Regular 60 page quarterly newsletter. £6 p.a. TI-99/4A Exchange, 40 Barrhill, Brighton BN1 8UF

**WANT TO BUY, SELL, SWOP?**  
**PHONE BECKI ON**  
**01-437-0699**

The contents of this publication, including all articles, plans, drawings and programs and all copyright and all other intellectual property rights therein belong to Argus Specialist Publications Ltd. All rights conferred by the Law of Copyright and other intellectual property rights and by virtue of international copyright conventions are specifically reserved to Argus Specialist Publications Ltd and any reproduction requires the prior written consent of the company.  
© 1985 Argus Specialist Publications Ltd

SSN0264-4991



# Nationwide Shops and Dealers

## STAFFS



24 The Parade,  
Silverdale, Newcastle  
Tel: 0782 636911

Official Acorn computer  
dealer and BBC service and  
information centre

Huge stocks available backed up by  
sophisticated service dept for all popular  
computers. Direct orders through Micronet  
page no. 60043726

## Repairs 'n' Spares Register

### HEMEL COMPUTER CENTRE LTD.

For fast reliable repair service  
of your SPECTRUM, BBC,  
DRAGON, ATARI and  
COMMODORE computers. e.g.  
Send your 16/48K Spectrum to  
us and we will repair and return  
it for £20 + £1.60 p&p.

Hemel Computer Centre Ltd.,  
52 High St., Hemel Hempstead,  
Herts HP1 3AF.  
Tel: 0442 212436

### THE COMPUTER HOSPITAL SICK SPECTRUM SPECIALISTS

Send us your poorly patient well wrapped.  
We will diagnose, cure and return your  
friend 100% fit. £17.50 inclusive 48K  
upgrade £29.50 inclusive.

Invicta House, Station Road,  
Keyingham, Hull, HU12 9SZ  
Tel 09644 3354 24 Hrs Ans

### SINCLAIR COMPUTER REPAIRS

Fast reliable repairs by experienced  
engineers having serviced Sinclair computers  
since the introduction of the ZX80. Our  
price is inclusive of all parts, labour, postage  
and VAT, irrespective of fault.

\*No hidden charges

\*While-you-wait service available.  
Spectrum £18.75.

ZX81 £11.50. 16K RAM £9.95.  
Call or send with cheque or PO to

TV Services of Cambridge Ltd,  
French's Road, Cambridge CB4 3NP.  
Telephone (0223) 311371.

Now available SPECTRUM XK  
MEMORY EXPANSION SYSTEM  
XK System Kit £15.95 inc VAT.  
XK System Factory fitted £20.95 inc VAT.

### HOME COMPUTER REPAIRS

VIC-20 ..... £20.00  
Commodore 64 ..... £27.50  
Dragon 32 ..... £35.00  
Oric 1/Atmos ..... £25.00  
ZX Spectrum ..... £17.25  
ZX Interface 1 ..... £17.25  
ZX Microdrive ..... £17.25  
plus others. All repairs carry 6 months'  
warranty on replaced parts. Extended  
warranties, peripheral repairs, upgrades  
etc., etc. All available. Fully inclusive of  
parts, p&p + VAT.

Ring for details: (0234) 213645.  
ZEDEM COMPUTER LTD.,  
2 Kimbolton Road, Bedford

### COMPUTER REPAIRS IN SOUTHEND

SPECTRUM, BBC, ELECTRON,  
CBM 64, VIC-20  
MINNIE MICRO ELECTRONICS  
12 Eastern Esplanade, Southend  
Tel: 0702 62033/615809  
Open 7 days a week

### BBC SPECTRUM REPAIRS

\* Spectrum repairs £18.50 inc. parts,  
insurance and p&p  
\* BBC B repairs £18.50 + parts, insurance  
and p&p  
Send your computer with cheque or P.O.  
for £18.50 and description of fault to:  
SUREDATA (HCW), Computer Service,  
45 Wychwood Avenue, Edgware, Middx.  
Tel: 01-951 0124

### CHILTERN COMPUTER CENTRE

Fast reliable service  
Spectrum £15 incl.

We also repair BBC, Commodore, Oric,  
Dragon, disc drives and printers.  
Ring 0582 455684 for details.  
Send computer with details incl cheque to:

Chiltern Computer Centre (HCW),  
76B Dallow Road,  
Luton, Beds



Commodore repairs. By Commo-  
dore approved engineers. Repair  
prices — VIC-20 modulators £6.50,  
VIC-20 from £14.50, CBM 64 from  
£18.00, C2N from £7.00, printers,  
disk, etc. For more details write or  
tel. G.C. Bunce & Son, 36 Burling-  
ton Road, Burnham, Bucks SL1  
7BQ. Tel: (06286) 61696.

# CLASSIFIED ADVERTISEMENT — ORDER FORM

1	2	3
4	5	6
7	8	9
10	11	12
13	14	15

Please place my advert in Home Computing Weekly for \_\_\_\_\_ weeks.  
Please indicate number of insertions required.

ONLY 35p per word (minimum charge 15 words)

CLASSIFIED DEPT., HOME COMPUTING WEEKLY,  
1 Golden Square, London W1R 3AB  
Tel: 01-437 0699

Name .....

Address .....

Tel. No. (Day) .....



# GOOD BYTE

OUR  
RRP PRICE

### COMMODORE 64

SENTINAL	9.95	7.50
GHOSTBUSTERS	10.95	8.50
SUICIDE EXPRESS	7.95	6.50
OTHER ACTIVISION	9.95	7.25
ZIM SALA BIM	9.95	6.95
PSYTRON 64	7.95	5.25
TALES OF THE ARABIAN NIGHTS	7.00	3.75
BEACH HEAD	9.95	7.50
SOLO FLIGHT	14.95	11.00
DEATH STAR INTERCEPTOR	9.95	7.50
MY CHESS II	11.95	8.25
BATTLE FOR MIDWAY	8.95	4.95
QUASIMODOS REVENGE	7.90	5.90
ZAXXON	9.95	7.50
SUMMER GAMES	14.95	10.50
SHERLOCK	14.95	10.50
PSI WARRIOR	9.95	5.99
STAFF OF KARNATH	9.95	7.25
BLUE MAX	9.95	7.50
SELECT 1	12.49	8.50
SPY VS SPY	9.95	7.50
BOULDER DASH	8.95	7.25
HOBBIT	14.95	9.99
DALEY THOMPSON DECATH	7.90	5.25
KONG'S REVENGE	7.90	5.90
FIGHTER PILOT	9.95	7.50
BREAKFEVER	7.00	4.95
COMBAT LYNX	8.95	6.95
WHITE LIGHTNING	19.95	15.95
SPIDERMAN	9.95	6.99
CAD CAM WARRIOR	9.95	7.50
F15 STRIKE EAGLE	14.95	11.70
MOTORCROSS	7.95	5.80
SUICIDE STRIKE	7.95	5.80
SPY HUNTER	9.95	7.50
IMPOSSIBLE MISSION	8.95	6.75
CASTLE OF TERROR	9.95	7.50
EMPIRE OF KHAN	7.00	4.95
SHOOT THE RAPIDS	7.95	6.50
LORDS OF MIDNIGHT	9.95	6.99
CONGO — BONGO	9.95	7.50
WORLD SERIES BASEBALL	7.90	5.90
ALICE IN VIDEO LAND	9.95	7.95
UP AND DOWN	9.95	7.50
MEGA HITS	19.95	14.95
AIRWOLF	7.95	5.50
TIR NA NOG	9.95	7.50
PENETRATOR	6.95	5.95
SLAP SLOT	8.95	6.75
ARABIAN KNIGHTS	7.00	4.75
AQUA RACER	7.95	5.95

### SPECTRUM

PROJECT FUTURE	6.95	5.25
EVERYONE'S A WALLY	9.95	7.25
BUGGY BLAST	5.95	4.50

DALEY THOMPSON	6.90	4.99
BEACHHEAD	7.95	5.95
WHITE LIGHTNING	14.95	10.50
SHERLOCK HOLMES	14.95	9.99
KNIGHTS LORE	9.95	6.95
UNDERWORLD	9.95	6.95
LORDS OF MIDNIGHT	9.95	5.95
DOOMARKS REVENGE	9.95	5.95
PSYTRON	7.95	5.95
FRANK N STEIN	5.95	4.50
T.L.L.	5.95	4.50
TRASHMAN	5.95	4.50
CLASSIC ADVENTURE	6.95	5.25
MONTY MOLE	6.95	5.25
FULL THROTTLE	6.95	5.25
MATCHPOINT	7.95	6.75
AVALON	7.95	5.25
ENDURO	7.95	5.25
EDDIE KIDD JUMP CHALLENGE	7.95	4.75
COMBAT LYNX	7.95	5.25
DARK STAR	7.95	4.95
JET SET WILLY	5.95	4.50
STAR STRIKE	5.95	4.50
TRAVEL WITH TRASHMAN	5.95	4.50
BCKPKR GUIDE TO THE UNIVERSE	7.50	4.95
QUASIMODOS RVNGE (HNGHCK II)	6.90	4.90
TIR NA NOG	9.95	6.95
AIRWOLF	6.90	5.25
MATCH DAY	7.95	5.70
PYJAMARAMA	6.95	5.25
MACHINE LIGHTNING	19.95	14.95
MONTY IS INNOCENT	6.95	5.50
GREAT SPACE RACE	14.95	4.99
POTTY PIGEON	6.95	5.25
PITFALL II	7.95	5.95
RAMTURBOINTERFACE	18.00	
MATCH POINT	7.95	6.50
GIFT OF THE GODS	9.95	7.95
TRIPPODS	11.50	7.50
BOULDER DASH	7.95	5.95
SPIDERMAN	9.95	6.99
SOFTWARE STAR	6.95	5.25
TECHNICIAN TED	5.95	4.75
HEROES OF KHAN	5.50	4.25
ALIEN B	9.95	7.25
SPY HUNTER	7.95	5.95
TAPPER	7.95	5.95
VALHALLA	14.95	4.99
SAM STOAT	6.95	5.50
SPY HUNTER	7.95	5.95
MEGA HITS	19.95	14.95
A DAY IN THE LIFE	6.95	5.50
DEATH STAR INTERCEPTOR	7.95	5.95
DUKES OF HAZZARD	6.95	5.50
GHOSTBUSTERS	9.95	5.50
MOON CRESTA	6.95	5.25
DRAGON TORC	7.95	5.95
WIZARDS LAIR	6.95	5.25

ALL PRICES INCLUDE P&P

PLEASE NOTE IF YOUR ORDER  
EXCEEDS £50 YOU GET  
10% FURTHER DISCOUNT

SEND CHEQUES/P.O. TO  
GOODBYTE (HCW)  
94 LEATHER LANE, LONDON EC1  
(TEL: 01-404 4245)

ALL PRICES INCLUDE P&P

Overseas orders welcome, please add £1.50 per order

## TI-99/4A SPECIAL OFFER

### TEXAS CARTRIDGES

MUNCH MAN	4.95
VIDEO GAMES 1	4.95
BLACKJACK & POKER	4.95
HUNT THE HUMPUS	4.95
ATTACK	5.95
BLASTO	5.95
TOMBSTONE CITY	5.95
AMAZING	5.95
TI INVADERS	6.95
SOCCER FIVE A SIDE	7.95
VIDEO CHESS	7.95
ADVENTURE/PIRATE	7.95
BEGINNING GRAMMAR	3.95
ADDITION SUBTRACTION 1	3.95
ALIEN ADDITION	3.95
EARLY READING	5.95
MINI MEMORY	49.00

### CASSETTES

THE COUNT (TEXAS ONLY) ..... 5.50

Price includes FREE FAST DELIVERY

### CASSETTE SOFTWARE

ADVENTUREMANIA	b	3.95
MANIA	b	3.95
ATLANTIS	b	3.95
BUILDER/MINEFIELD	b	3.95
DADDIES HOTROD	b	3.95
HUNCHBACK HAVOC	b	3.95
WONKY WARLOCK	b	3.95
TROLL KING	b	3.95
ROBOPODS	b	1.95
VIRGIN FUN PACK 3	b	2.50
QUASIMODO HELP	eb	3.95
INTRIGUE PENTATHLON	eb	3.95
LIONEL & LADDERS	eb	3.95
CRAZY CAVER	eb	3.95
BATTLESTAR ATTACK	eb	3.95
SNOUT OF SPOUT	eb	3.95
QUICKSHOT 1 JOYSTICK FOR TI	.....	13.70
CASSETTE INTERFACE	.....	5.00
JOYSTICK INTERFACE	.....	3.00

12 PAGE CATALOGUES 50p

ACCESS Tel: 0600 4726

Send post cheques to:

INTRIGUE SOFTWARE,  
CRANBROOK RD, TENTERDEN,  
KENT TN30 6UJ

OFFER OPENS 2nd April, closes 30th  
April. Orders received after closing date  
will not apply.



If an advertisement  
is wrong we're here  
to put it right.

If you see an advertisement in the press, in print,  
on posters or in the cinema which you find  
unacceptable, write to us at the address below.

The Advertising Standards Authority. ✓

ASA Ltd, Dept 3 Brook House, Torrington Place, London WC1E 7HN





What did Jumping Jack say when an interviewer asked him if he enjoyed all that jumping? It has its ups and downs  
**Elliot Mason, Hove**

### You can do magic

In magic squares each straight line of numbers, including diagonals, adds up to the same total. If you pop the numbers 1 to 16 in order into a square (Fig.1), the result is about as magic as forecasting yesterday's weather. But there is a simple way to swap certain pairs of numbers and produce a magic square.

Can you work out how to do it? To start you off we've put in the digits for 1985 (Fig.2), so you shouldn't take all year to complete the trick.

Fig.1

16	15	14	13
9	10	11	12
8	7	6	5
1	2	3	4

Fig.2

5			8
			9
1			

### Readers' hi-score table

Name	Game	Machine	Score
James Hogan	Killer Gorilla	BBC	43,700
Edwin Armstrong	Defenders	TI	2,615,300
Paul Crawley	Falcon Patrol II	C64	90,690
Peter Devine	Blue Max	C64	42,710
Jason Langridge	Tombstone City	TI	344,250

## NORTH EAST TI USERS CLUB

5 Saville Place, Newcastle upon Tyne NE1 8DG

Dear *HCW*,

Thank you for publishing my previous letter about the North East T.I. Club in your magazine. During that time we had a substantial increase in membership and we have now modified our meeting times.

The North East T.I.-users Club, which is specially devoted to the Texas Instruments Home Computer now meets every fortnight (from Saturday March 30th) at the Newcastle City Library, 5th floor, in the Beavick room between 1.00 pm and 4.30 pm

We can help on all aspects of computing and we also have software at discount prices together with a lot of cartridges which are swapped between members. Members can also bring their own equipment to the club if they wish.

New members are always welcome. (Please ask for Phil or Errol)

Yours faithfully,

*P Coates*

Philp Coates

### Solution to last week's puzzle

6	4	3	0	0	1	1	2
0	3	2	2	2	2	4	5
6	5	4	1	5	1	6	6
2	3	5	5	0	0	5	2
4	4	5	4	3	6	0	6
0	1	3	6	4	6	1	2
5	4	1	3	0	1	3	3



*Another winner in the range  
of Sensational Software....*

# AIR TRAFFIC CONTROL



This is not just a game but a simulation of everyday problems encountered by those real-life air traffic controllers.

All air travellers are unconsciously dependant on the skill of these people and this program enables you to test your skills in manoeuvring aircraft safely around the air motorways and despatching them into the hands of others in neighbouring air space.

# MIKRO-GEN

**Home Computer Weekly**

It is fascinating to watch, and interesting to play.

Even on level one your interest is held. Level nine is so crowded that not even a real controller could cope.

As absorbing as a flight simulator, but different!

instructions	95%
playability	100%
graphics	95%
value for money	90%



# Super Gran

FREE 16 X 24  
FULL COLOUR  
POSTER



**TT**  
TYNE TEES  
COLOUR

COMING SOON SUPER GRAN  
THE ADVENTURE  
SPECIALLY WRITTEN FOR KIDS

*This great new game is based on the Tyne Tees series Super Gran and produced in association with Tyne Tees Television.*

*Super Gran will be available for the CBM 64, Spectrum 48K,*

*C16 and Amstrad on April 2nd with versions for the BBC/B Electron, MSX, Atari and Einstein to follow.*

**TYNESOFT**  
COMPUTER SOFTWARE

*Ring Tynesoft on (091) 414 4611 for your local stockist.*